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Medical History: Some Problems and Opportunities

CHARLES F. MULLETT*

THE experience of the historian, and no doubt of the physician as well, when he turns to histories of medicine for guidance to the past, is generally one of disappointment, even frustration. The evolution of political, economic, and religious institutions, of great central themes, of diverse phenomena in various realms has been related in a manner satisfactory not only to the layman but also to the acute and learned specialist. Unfortunately, this situation does not characterize the histories of medicine. What Sarton deplored ten years ago about the history of science still applies to the history of medicine: it is a relatively new discipline, as yet unmastered and lacking a synthesis truly worthy of the subject.[1] This lack follows as much as anything from the absence of professional historians. "Most of the work is being done by physicians, nurses, sociologists, students, librarians, and others to whose efforts the professional historians owe a great debt. Without their spadework the task would be insurmountable."[2] At the same time, the ignorance of historical materials, techniques, and viewpoint of some of these workers has had some unhappy consequences.

This is not to disparage such convenient handbooks as Garrison's *History of Medicine* or Singer's *Short History of Medicine*, the suggestive, even exciting, essays of Sigerist and Zinsser, or special monographs of the order of Wilson's *Plague in Shakespeare's London* — to name a few examples at random. Each has its place, an important place, in the historiography of medicine. Nonetheless, these authors would quickly admit, if they have not already done so, that their achievements would have greatly benefited from the greater availability of source materials, the composition of general works, the preparation of detailed monographs, and, above all, the penetration through all such writings of historical, as opposed to present, mindedness.

Source materials abound but they are scattered, secondary, or tertiary to the main interests of the editors and therefore not infrequently "edited"

* Professor of history at the University of Missouri.

[1] *The Study of the History of Science* (Harvard University Press: Cambridge, 1936), p. 4.

[2] Genevieve Miller, "The Study of American Medical History," *Bulletin of the History of Medicine*, XVII (Jan., 1945), p. 1.

in an unsatisfactory manner. General works exist but they reveal the lack of monographs and sources and do not contain the sound generalizations basic to further studies. The special monographs themselves often repel by their absorption in a small sector to the exclusion of its ramifications; they appear to have been compiled in a vacuum. Finally, the lack of historical mindedness has had the subtly vicious effect of creating an unwholesome contempt for the past, so that even the student with an historical viewpoint is victimized by its absence in those pioneers he often must follow. How true it is that "if one's work is to be genuine, he must learn to handle the basic tools of research before he can think of any serious studies in the field."[3] At the same time, of course, he must have the tools to begin with. The fuller and more specific application of these introductory remarks to the problems and opportunities of medical history will here be the major concern and purpose.

That disease, its threat, mortality, and general consequences, has influenced the course of history far more than matters often receiving greater and more serious attention is beyond debate. Napoleon has inspired many times the pages given the plagues of history; yet with due respect to the titanic impact, both of the man himself and the ideas he personified, he determined the evolution of events no more than one far-flung epidemic. The ramifications of such a catastrophe extend far beyond the immediate circumstances which of course have great significance in themselves. They touch so many aspects of civilization that indeed one, unless he keep a firm grip upon his imagination, can scarcely forbear claiming more for the subject than the facts warrant.

To enumerate only a few specific instances, it cannot be denied the Black Death of 1349, the cattle distemper of the 18th century, the presence of such diverse endemic scourges as typhus, scurvy, and smallpox, and the persistent search for health as summed up in balneotherapy influenced political concepts and institutions, the evolution of social and economic doctrines and practices, religious outlook, as well as the development of scientific thought. What is true of these particular examples for England — with which these pages are entirely concerned — applies equally well to other countries, other periods, and other manifestations of the same phenomena. It is pertinent for the history of the Mississippi Valley or one's own community.[4] Without attempting to recast the his-

[3] *Ibid.*, p. 2.

[4] As Miss Miller has observed (*ibid.*, p. 3), a person "can study the medical history of the community in which he is living . . . . He can uncover old trunks in the attics of his friends which may yield valuable material and pictures by means of which to illustrate his papers on the medical history of the com-

tory of England, or by implication that of any other part of the world, the student may find medical history and its extensions a most fruitful path for reinterpreting social evolution.

At the outset, let it be remembered that although the largest and most far-reaching features of the past are normally and properly most worthy of study, a precise and broad grasp of human development can often be quite happily attained through the examination of lesser problems and tendencies. It takes more than one swallow to make a summer, more than one peak to make a mountain range, and much more than one name, one institution, or one idea to provide sound historical insight. As Mr. Justice Holmes found in his legal explorations, one's keenest interest may be excited not by what are called great questions or great discoveries but by little items which the common run of selectors pass by because they do not deal with evolution or vitamins or allergies, yet which have in them the germ of some wider theory, and therefore of some profound interstitial change in our culture. This judgment applies particularly well to the history of medicine where so much writing has confined itself almost wholly to the greatest names, the most world-shaking discoveries, and the interests most pertinent to today's medical developments.

Histories of medicine in general range from the pedestrian to the shallow and spectacular, but most suffer from the assumption, implicit or explicit, that medical science is every day of higher quality than ever before. Now and then writers condescendingly admit a soupçon of insight, a flash of skill, to the older theorists and practitioners, but these are stressed as the exceptions, the rare lights in the dark ages, recognized only because the writers themselves are so broadminded about the past. Poor old past! Treat it with respect as one treats a babbling old man who hasn't long to live or anything to commend.

The very charity involved in picking out a half dozen men as worthy to be admitted to the fraternity of modern practitioners has a most un-

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munity." He can study the careers of local doctors, the files of local newspapers, and the records in the courthouse. Through these he can discover local health history and attitudes. In this connection the excellent article by Whitfield J. Bell, "Suggestions for Research in the Local History of Medicine in the United States," *Bull. of the Hist. of Med.*, XVII (May, 1945), pp. 460–76, presents a stimulating prospectus. He stresses the need for studying medical history against the larger background and outlines some topics and queries worthy of investigation. For the community one may examine the role of geography, economics, social factors, and popular medical concepts. The physician may be studied from the standpoint of his origins, education, place in the community, and contributions to knowledge. The character and dissemination of medical knowledge, the organization of practice, hospitals, nursing, and preventive medicine, the development of pharmacy and dentistry, alike warrant extensive consideration.

historical odor. In the first place, the ethical outlook, the social conscience, the scientific curiosity, and the practical achievements of those cited put them in the category of great men and, whatever their technical deficiencies, give them an assured niche in the history of civilization. Secondly, their place ought to be shared by hundreds of others who through the accident of lost records, modesty, chauvinism, or the ignorance or sheer perversity of historians have long since been forgotten. Seventeenth century England had only one William Harvey, and of him it is enough to say: "if any single individual can be named as the first to introduce into medical thought, exact methods of observation and experiment for the correlation of structure and function, this credit belongs to William Harvey. Moreover, it is probably not unreasonable to appraise him as the most important individual force in the transition from medieval to modern medicine," which means the transition from dialectic to patient, painstaking experiment.[5] Yes, there was only one William Harvey, and of him you have all heard. But there were ninety and nine others of whom you have not heard. So here one may reverse the parable: rejoice more in the ninety and nine than in the one, and for good reason. The one has been saved for immortality; the ninety and nine are still astray so far as most historians are concerned. Yet without the writing, the experiments, yes, even the very mistakes of the ninety and nine, the achievements of William Harvey and his intellectual peers would have been much slower to come and still slower to be accepted.

The history of medicine may be approached in numerous ways, depending in large measure upon the professional competence and bias of the student. It may of course be written by the historian or by the scientist, or *mirabile dictu* by one equipped in both fields. Whether the historian or the scientist will turn out the better product may be put aside as an unprofitable discussion; yet it may be no harder for a layman to master the technicalities of science than to secure the necessary facts and the even more essential outlook of the historian. George Sarton, historian *and* scientist, has emphasized the desirability of concentrating on one period, one country, and one field, as the best means of enlarging our knowledge of the all too neglected history of science.[6] The present writer's investigations have concentrated on public health and preventive medicine, an aspect in which so much popular writing has stressed the quaint and superstitious. The country and the time considered have been

[5] Hans Zinsser, *As I Remember Him* (Little, Brown and Co.: Boston, 1940), pp. 116–17.

[6] Sarton, *Study of History of Science*, p. 27.

England, mainly 1500–1800; and this milieu provides the foundation for the generalizations set forth here. Yet many conclusions will apply for other times and places and even for other branches of the history of science, since "medicine is sometimes spoken of as the mother of the sciences" and the ascending curve of achievements in medicine closely parallels the advance in the fundamental sciences of biology, chemistry, and physics.[7]

The specific sources of information are: (1) the innumerable essays on "health" and on particular diseases, controversies, and cures; (2) several periodicals, including the *Transactions* of the Royal Society of Science; (3) various local and national ordinances, statutes, and records; (4) law reports and court minutes, both local and national; (5) family papers, published and unpublished; (6) travel accounts at home and abroad; and (7) a miscellany of literary materials. No type of material that might contain medical references has been omitted, because until this varied information is analyzed we have no adequate basis for judgment. No one knows at what moment a newly-discovered fact is going to destroy a tissue of generalizations, a prospect that cuts both ways. It may, and often does, reveal greater wisdom on the part of our ancestors than we supposed; or it may make clear that what a student fondly hoped was evidence of great foresight has merely been misinterpreted and that 1645 wasn't quite up to 1945 after all.

Of these sources, for the problems here emphasized, the most important are the essays on health, general or particular. From the dawn of printing in England down to 1640 some 350 books dealt specifically with problems of health and disease, which means at a rough estimate that about one book in forty, for a measurable period on which we have data, treated these problems in a manner comprehensible to the intelligent layman; and at least 95% are in English. They were composed usually by men of medical training, though not always, and for the most part can be set down as sober, straightforward pieces, devoid of quackery and pretense and especially revealing as to persistent diseases, health ideas, and the outlook of the medical rank and file as well as of laymen. The number of such essays tended steadily to increase, and for one five-year period after 1640, namely 1668–73, the writer found 59 medical books which probably constitutes a fair clue to the output in the later 17th and early 18th centuries. The essays range in length from a dozen octavo pages to folios of

[7] Anton J. Carlson, "The Role of the Fundamental Sciences in Medical Progress," *The Scientific Monthly*, L (Jan., 1940), p. 59.

several hundred; their titles are equally varied with no correlation between the length and that of the essay. At times, indeed, it appears that one could almost write a history from the titles alone, although on occasion the title scarcely does justice to the content, and *vice versa*.

Thomas Cogan's *Haven of Health: chiefly gathered for the comfort of students and consequently of all those that have a care of their health, amplified upon five words of Hippocrates* (1586 *et al.*) illustrates a fairly precise title, the tract itself being a good concise example of a large body of literature — a generalized essay on health with comment on exercise, diet, some diseases, and the proper regimen in all particulars. On the other hand, one would scarcely discern in John Jones, *The Art and Science of preserving Body and Soul in all Health, Wisdom, Catholic Religion: physically philosophically, and divinely devised: right profitable for all persons: but chiefly for princes, rulers, nobles, bishops, preachers, parents, and them of the Parliament house* (1579) a full length and substantial treatise on pediatrics; or in an anonymous tract, *A Scheme humbly offered for making religion and the clergy useful* (1732), a dissertation on hemorrhoids. (Incidentally, the work by Jones illustrates a bibliographical point about much of this early literature. It is the second work on pediatrics in England, not more than four copies are known to exist, and the only one of the four in this country is to be found in the Huntington Library.)

These diverse essays also have the useful value of revealing the isolation of specific ailments from the general lump. In the 16th century the plague bulks large as a subject, and while the bubonic plague was usually referred to, the term *plague* had a very generalized usage and most certainly comprehended what we know today as typhus, influenza, and probably some related diseases as well. Venereal disease was also segregated in the 16th century, although its various types were not appreciated. In general, the process of sharper definition of disease is a 17th century feature and all sorts of ailments come in for specific analysis and description.

The appreciation of technique shows even more rapid evolution. Surgery was early the subject of special works, as was urology — or perhaps we should say uroscopy, for "water-gazing" was a common and often ridiculed means of treatment from the beginning. Herbals and a few remnants of bestiaries were another type of medical literature with their attributions of curative properties to many herbs and parts of beasts. Attention to public health and preventive medicine, that child of medical research and social statesmanship, had its first precise English exposition

in a tract of 1536 under the odd title, *The Highway to the Spital House*, which vigorously treated dispensary and similar problems, questions that were to recur time and again in this type of medical literature. Controversies over techniques and cures flared up in these essays, and any sort of theory was likely to receive a thorough airing. The common notion that these earlier centuries comprised "an age of credulity" is easily refuted by the materials under discussion. Space, however, does not permit or need require sampling all the varied aspects of medical history revealed by these health books. Obviously their value can scarcely be overestimated, for few indeed are the subjects on which they fail to throw light in one way or another. Something also needs to be said about other materials since each has its own peculiar contribution to make.

In the 18th and 19th centuries the periodicals succeed for the purpose stressed here to the place occupied earlier by the essays; as the books tend to become more specialized and technical it is necessary to depend on the popular vehicles of opinion and news for evidence of the layman's outlook and on public health techniques and problems. Here, specific cures, advertisements, hospital reports, resumés of medical news at home and abroad, book titles and reviews, and bills of mortality share space with abstracts of books and with lengthy and often violent controversies. These latter include disputes over methods such, for example, as inoculation, over standards of practice, the merits or otherwise of quacks, and the pervasive problems of sanitation, hospitals, and governmental regulation. Above and beyond the specific light thrown on these and other aspects of medical history are the valuable insights into the ramifications of health ideas and practices in contemporary English culture, which can only emerge from so comprehensive an array of materials.

It is important, also, to realize that the periodicals, though popular in intent, did not hesitate to inform their readers of the most advanced, even technical developments. Not only did they abstract and review the latest — and not so late — books, they regularly published summaries of the *Philosophical Transactions* of the Royal Society and similar learned groups in the British Isles and on the continent. Assuredly these contributions were not nearly so technical as their modern equivalents, but they represented the best of the time. Furthermore, the Royal Society published its own *Transactions* of which full-length abridgments were also available. In estimating the ideas of the 18th century both such popular magazines as the *Gentleman's*, *London*, and *Scots* and these more learned journals must be considered. It may indeed not be too much to say that the contents of

the latter filtered into popular consciousness more quickly and more directly than is true today. In this connection one should not neglect such literary guides as the *Monthly Review* and the *Critical Review* which carried both summaries and critical appraisals of an enormous number of publications. From these sources it is easy to appreciate how extensive was the list of medical works, how varied was their character and appeal, and how their content penetrated the mind of the public.

Official records such as statutes, proclamations, ordinances, minutes, and law reports, whether local or national, diversely and pertinently illustrate the prevalence of diseases, human or animal, methods of prevention, quarantine, and cure especially during epidemics, the success of such policies, efforts to remove abuses in the practice of medicine and surgery, and the social and scientific outlook of governmental aut' -ities. In these connections they refute many common and unwarra t assumptions. The national housing proclamations of the 16th and .n centuries, the local ordinances even from tiny villages against stagnant water, the litigation in regard to dubious practitioners, and the promptitude of governmental action in the face of epidemics, action often unpopular and contrary to general conviction, reveal the widespread awareness of the necessity for preventive measures. No one can deny either the inadequacy of the action or of its enforcement but good intentions certainly deserve more than casual consignment as paving material for hell. Usually, it is true, these official records of whatsoever sort lack the variety and superficial human interest of the essays and periodicals, but they prove quite as rewarding when one fully gets into them. In any case the delightful little note in some Surrey parish minutes for 1791, "Ordered that Mr. Guildhar be paid a guinea for electrifying the poor in the old workhouse," need yield to nothing in its humorous combination of verbal ambiguity, insight into public health ideas, and the medical uses of electricity.

Family papers are particularly revealing on home care and cures and on the relation of doctor and patient, not excluding fees which in many instances turn out to be quite comparable to those prevailing in many parts of the United States at the present time. Sometimes, we are entitled to feel, the published books or articles represent the highest achievements in standards and practice, whereas unpublished materials and private advices would disclose more superstition, quaintness, or lag. That view is debatable; there often seems, indeed, very little, if any, difference. Doctors' letters tell us something about the personalities of bygone healers who, of course, appear little different from modern doctors. At times we get a

sharp judgment about fellow-practitioners that does not always find its way into print, or an epigram that might otherwise be lost, such as Dr. John Radcliffe's comment on treatment by correspondence — a man might as well draw a face as prescribe for one he did not see — or something in verse, as these lines to and from stout Dr. George Cheyne (475 pounds):[8]

Doctor! one new prescription try,
A friend's advice forgive.
Eat grass, reduce thyself, and die;
Thy patients then may live.

To which Cheyne replied,

I cannot your prescription try,
But heartily forgive.
Tis natural you should bid *me* die,
That *you* yourself may live.

Of course, in family papers may be found not only letters to and from physicians but also news about sickness and health, specific essays, such as the recently discovered one on the proper regimen for prospective mothers,[9] and all sorts of home recipes. These last are for the most part general in character and deal with every sort of ailment that may reasonably be expected to crop up; sometimes, however, they reflect a temporary, local crisis such as the cholera epidemic of 1830 for which a recipe book has recently come to light.

Travel diaries have considerable value as a medical source, and from several angles. They describe the new diseases met with on voyages and in new countries; they reveal the improvising skill of Englishmen in meeting new situations; they list the new herbs and their curative virtues; and they inform us concerning the medical ideas and practices of primitive and not so primitive people. The English travelers of the 16th to the 18th centuries displayed an avid curiosity about medical phenomena as indeed they needed to, because it often meant extinction or survival, and they incorporated a great many of their discoveries into English medicine. Certainly no phase of the influence of overseas expansion on the mother country surpassed science in significance; and the travel diaries are at once the sources of *our* information and of the books and

[8] *The Letters of Doctor George Cheyne to Samuel Richardson (1733–1743)*, ed. Charles F. Mullett, *University of Missouri Studies*, XVIII (Columbia, Mo., 1943), pp. 16–17.

[9] Mullett, "Sir Richard Croft and the Regimen of Expectant Mothers," *Bull. of the Hist. of Med.*, XVII (Feb., 1945), pp. 195–202.

articles through which this new knowledge passed into the possession of Englishmen at home.

The literary materials require no special attention inasmuch as anyone can recall the "doctor in literature" whether in novels, plays, poetry, or essays. At the same time it may be pertinent to remind ourselves that several distinguished writers have displayed their literary skill to advantage in swelling the *corpus* of medical literature. Such poets as Thomas Lodge, Thomas Dekker, and George Wither contributed brilliantly to plague literature as did that Jack-of-all-trades, Daniel Defoe. Tobias Smollett in all his novels, but especially in *Humphry Clinker*, revealed his medical experience. Thomas Browne has — except that he is too modest — certain ground for complaint over no more than a reference to his "double first." Indeed the profession has enjoyed a long and well-based reputation for literary skill, and the roll of physicians who have left their mark on literature is a full one.

From such varied sources as have been characterized here a number of generalizations as starting points for further discussion are possible. They will be briefly summarized in what follows for what they are worth, without any particular regard to relative importance or their universal application to the period generally comprehended in this paper.

For the 16th century one of the most conspicuous characteristics is the large number of foreign medical works in English. During the period 1475–1640, approximately 1000 men were translating books of all kinds into English; they translated about 2000 titles, nearly one-eighth of the total printed. The proportion of medical books translated corresponds roughly to the total body of translations, though, of course, it is not evenly distributed over the whole period. In general, foreign books were distinctly superior to the native products both in the quality of their science and in the effectiveness of their exposition. They adhere closely, it is true, to the conventional Galenic medicine, but at least they exhibit a standard and substantial achievement. By contrast the English works display less learning and more of a tendency to wander into the diffuse paths of folklore. Their lack of comparable quality is apparent even in their style, for they are less logical and compact in their thought and therefore in their expression. By the 17th century the number of translations had declined until it represented only a small proportion of the total, and such translations were in no wise distinguishable from the purely English contributions as to content and style. As the century unfolded no more

than a nominal number of foreign books were translated and their appearance constituted a matter of no moment.

One general caution perhaps ought to be noted with respect to translations: there is no guarantee of an exact rendering. The "translator" may have omitted, telescoped, or paraphrased his original. He may have interpolated his own ideas; he may deliberately have altered or even reversed the original; he may have ignorantly mis-translated. A particular example of the latter concerns a history of smallpox.[10] Charles O'Conor, the very learned and very opinionated Irish antiquary of a century and more ago, had smallpox flourishing in Ireland a full century before it appeared elsewhere in western Europe and perhaps six or seven centuries before it actually reached Ireland, all because of confusing smallpox and leprosy. Other misconceptions of this sort have often arisen. Irrespective of such instances, however, the contention still stands that for the 16th century, at least, the quality of foreign works translated into English surpassed that of the native products.

Another characteristic of these past centuries was the constant effort to raise the standards of medical practice. From the beginning the health literature was permeated with denunciations of quacks, the abuses by apothecaries, and other forms of malpractice. Occasionally, as in 1669–71, a full-fledged controversy rocked the profession.[11] The founding of the College of Physicians (1518), which was steadily implemented with coercive power, legislation with respect to the Companies of Surgeons and Barbers, litigation against unlicensed physicians, laws concerning impure drugs, the gradation of healers into specific categories, each with its own rights and limits, the keeping of vital statistics—all represented concrete instances of reform as well as realization of social needs. The campaign for higher standards was waged by national and local agencies, by physicians acting in a corporate capacity through the College, and as individuals through their books, and even by laymen. The same tendency showed itself in policies instituted at times of crisis, an aspect which will receive fuller treatment below.

Equally though diversely significant was the tendency on the part of physicians to pay greater attention to individual diseases. The generalized "essay on health" gave way to the essay on scurvy or gout or any one of

[10] Mullett, "A Footnote to a *History of the Small Pox*," *Bull. of the Hist. of Med.*, XIII (April, 1943), pp. 487–94.

[11] Mullett, "Physician v. Apothecary, 1669–1671: an episode in an age-long controversy," *The Scientific Monthly*, XLIX (Dec., 1939), pp. 558–65.

a considerable number of ailments. This development, based in some measure, no doubt, on advancing medical knowledge and new or improved instruments, made possible far more full descriptions of various diseases and reduced the dependence on ancient theories. When a physician began to study a disease acutely and by itself he became a clinical diagnostician and acquired a scientific outlook and self-consciousness which he lacked earlier. While he perhaps retained some of the old terminology for window-dressing — and there is the constant need to separate this window-dressing from the essential contribution of the writer — he stated his real case in matter-of-fact language characterized by common sense and shrewd observation.

Frequently he traced the disease through its every manifestation and related it to other bodily ills with perhaps now and then an appreciation of psychological and emotional factors. He saw its cause, its symptoms, and its remedies (remedies incidentally not composed exclusively of horse dung, human sweat, and dried snakeskin as some writers would have us believe, but remedies which by contrast placed great emphasis on diet, exercise, and an intelligent regimen, and which often bear striking resemblance to the prescriptions and advices of the present day). Even when erroneous in some parts of his account — and it would be foolish to claim that he was not — the better physician appears a far cry from the *a priori* healers of another day or the charlatans of his own. Inevitably as time goes on the practice of concentrating on one disease leads to such specialization that by the later 18th century the lay historian of medicine finds greater difficulty in comprehending his sources. Probably the tendency towards a professional discipline made its appearance in the later 17th century, but nearly a century elapsed before it dominated medical literature, evolving more slowly in this than in some other branches of science.

A fourth characteristic of the history of English medicine relates to the importance of epidemics. This was especially marked in the centuries considered here, largely because the plague was a constant menace during the 16th and 17th centuries, and because other diseases such as smallpox, scurvy, or hydrophobia might at any moment assume critical proportions. Several diseases were virtually endemic during this entire period; thus added to the frequent descriptive works on those particular ailments were the specific efforts to combat them. Whether epidemic or endemic, however, the result was much the same. Medical literature swelled in bulk; physicians engaged in and recorded clinical observations, careful diagnoses,

and even experiments of a very creditable sort. The plague scare of 1720, for instance, demonstrated all these features, with some physicians striving to find a serum to inoculate people against the plague. Governments and quasi-public bodies instituted the keeping of vital statistics, enforced quarantines, subsidized experiments, and encouraged the publication of materials that might prove beneficial. Out of a suggestion by one writer that the government hire doctors, surgeons, and apothecaries came a Public Health Physician and Free Dispensaries. Indeed the Oxford historian of science, R. T. Gunther, has maintained that medical progress owes more to the occasional epidemic than to any other factor.[12] Although one need not accept this conclusion completely, it cannot be denied that during such crises something had to be done, and even if older treatments survived, more and more space went to practical, scientifically tested antidotes. On the other hand, it should be remembered that in times of great stress excessive superstition was quite as natural a concomitant as critical analysis; and there was always the possibility that real progress would have occurred in any case, without such negative accompaniment.

Closely akin to the contribution of epidemics to medical advance was the influence of utilitarian factors. The relation of technical progress to practical demands has, of course, marked the whole field of science. Applied science ofttimes has had, it is true, a disreputable odor, but if the pretentious claims of "scientific" made for their products by many advertisers be disregarded, the importance of utilitarian demands stands clear. The history of many specific diseases reveals how frequently practical considerations have determined the course of action. For instance, as early as 1600 when Englishmen were beginning to push their ways into remote and strange regions the problem of tropical and ships' diseases received much attention. While the results of that attention were not always happy, or if happy not closely followed up, physicians and government alike showed their awareness of the needs of the occasion. Even though two centuries elapsed before the horrible threat of scurvy was satisfactorily met, the value of lemon juice, fresh vegetables, and cleanliness was recognized in the days of Drake and Hawkins. Moreover, without subtracting anything from the tremendous achievement of Captain James Cook, who on one voyage spent some three years at sea in all sorts of climes with the loss of scarcely a man from illness, it would be foolish

[12] R. T. Gunther, *Early Science in Cambridge* (Oxford University Press: Oxford, 1937), ch. ix.

to deny that necessity in some measure shaped his policy. Need also stood back of the governmental experiment in the critical years 1779–1806, wherein the Admiralty kept figures on the casualties from scurvy when lemon juice was not issued at all, when partially supplied, and when fully supplied.

Many other such instances, notably those involving the plague, the growth of cities, military medicine, immigration, occupational diseases, and veterinary medicine, could be cited. Without attempting a long excursion into any of these it may be recalled that every sort of expedient was drafted against the plague whether it flourished at home or threatened from abroad, that the growth of cities led to all kinds of sanitary developments, and that immigration called especially for quarantines. Of military medicine it can be said that the army offered a large opportunity for clinical experience and was more important than the universities in Tudor-Stuart medical advance.[13] Occupational diseases received scattered attention early but not until after Ramazzini published his great study in the early 18th century did Englishmen turn seriously to the subject. The tremendous cattle mortality from distemper in the middle years of that same century — some half a million — vastly stimulated the rise of veterinary medicine in England, a factor not without significance to human health because most of the leading commentators on the distemper were M.D.'s and keenly aware of the importance of comparative pathology.[14]

Another consideration worth noting in the history of medicine has been the readiness to air new theories and new treatments. Although writers customarily describe the outlook of this physician as Paracelsian and and that one as Galenic, the doctors of 1500–1800 themselves were by no means exclusively authoritarian in their views. Naturally they looked to the past, since so often little change had occurred for hundreds of years in the treatment of a particular disease. Yet looking to the past was no monopoly of that period and scarcely to be regarded as damning. Furthermore, the temper of the times being what it was, physicians like other men with a public to consider found it expedient to emphasize the ancient character of their prescriptions, just as the legislators tended to stress the ancient character of the laws they were about to declare.

Where the doctor of 1645 followed the practice of stressing the past, the tendency in 1945 is quite as strongly in the opposite direction, with an

[13] Goldwin Smith, "The Practice of Medicine in Tudor England," *The Scientific Monthly*, L (Jan., 1940), p. 66.

[14] See my forthcoming article in *Agricultural History*, "The Cattle Distemper in Mid-18th Century England."

infallible implication in both cases. In neither instance should the claims be taken too seriously or literally, whether for the infallible past or the equally infallible present. William Harvey lost patients to some nameless healer because of his pioneering discoveries; Dr. X today loses his to a competitor across the street for the opposite but not necessarily better reason. That 17th century doctors were not hopelessly enslaved by the past is evidenced by the gradual supersession of cure by prevention as the primary objective: the psychological background of that transition refutes the notion of absolute subjection to authoritarianism by which past medicine is freely stigmatized. In addition, no one can read the columns of 18th century periodicals and fail to realize that men were constantly on the lookout for new methods. Time and again in their consideration of a particular disease men pleaded for more information: let the magazine, they urged, act as a clearing-house for new treatments and more data.

The final suggestion offered here deals with the relations between medical history and various expressions of human activity, though in this matter judgments must be very tentative indeed. In the realm of economics, wage freezing, the dislocation of trade, and the sheer cost of disease are readily discernible, but long term influences are less easily measured. One very plausible and sound effort in this direction has recently equated the bubonic plague with English economic life from 1350 to approximately 1700.[15] The writer's conclusions simply put are these: England suffered a great depression from 1350 to 1475 affecting every aspect of her economic life. This was no sudden and short-lived crisis — to be explained as formerly was the case in terms of the dramatic Black Death of 1349 — but a "creeping paralysis," a "slow, relentless decay." Giving due weight to such factors as the 100 Years War, the Wars of the Roses, foreign competition, bad government, and even the Black Death itself in a restricted sense, the author finds that other periods likewise had severe crises; but here was a protracted depression. The major cause was the persistent visitations of the plague with their great cost, reduction of population, and moral despair. Many economic changes of the 16th century relating especially to agriculture, which have been attributed to other factors, are here laid at the door of the plague which thus in part brought the substitution of grazing for cultivation, tenant farmer for copyholder, and the enclosure movement.

In social history one can never escape the relationship with medicine.

[15] John Saltmarsh, "Plague and Economic Decline in England in the later Middle Ages," *The Cambridge Historical Journal*, VII (1941), pp. 23–41.

To name no other feature, the development of the health resort, most notably the watering place, offers much opportunity for correlation. The two and a half centuries from the mid-16th to the 19th saw hundreds of specific discussions of various mineral waters; and literature was full of references. Balneotherapy ranked as a substantial branch of medicine, and the recreational activities of an entire people underwent a revolutionary change, a change which combined health and pleasure and has survived to our own day in the annual "trip" to the seashore or some resort.

Perhaps other adumbrations would contribute to a greater knowledge of religious history, both theological and institutional, to military history, and to political and constitutional history. In political history, for example, the parallel and contingent expansion of public health activities with the growth of the strong, centralized monarchy illustrates the point. Yet there is no need at present to add to all the other "interpretations" of history one which may be designated physiological, anatomical, or pathological. It is enough to consider the problems as primarily social, secondarily intellectual, both in the broadest sense.

With all that we are slowly learning and, what is of equal importance, unlearning, about medical history, much still calls for sound investigation. In the first place we need innumerable studies of particular and diverse diseases. We need studies of pandemics that carried off their tens of thousands in a short time, that had certain persistent elements, that had revolutionary effects on society in all its forms, that recurred year after year. These studies will supply comparative data and integrate medicine and civilization. We need also studies of diseases that survived through the ages, never reaching pandemic proportions but carrying off their hundreds year by year and arousing the antidotal concern of physicians and governments. Thirdly in this connection we need studies of acute diseases or occupational diseases that overtook a limited area or group or operated only for a limited time. We need studies of diseases not conspicuously fatal whether in the acute or chronic state, but wearing down health and morale, costing money, and complicating social, economic, and political problems. We need studies of the relation between environment and disease, between weather, climate, telluric factors and the various human ailments. Finally, to go no farther with this series of needs, we would undoubtedly benefit from studies in comparative pathology.

Second among the general needs is that for exhaustive studies of the careers and ideas of physicians, surgeons, and other healers of genuine

stature and substance, many of whom have left some record of their achievements. So much energy has been expended on the few greats — however desirable that knowledge and emphasis has been — that a totally disproportionate view of the whole development of medical history has resulted. As one seldom finds mountains without foothills so he seldom explores history without discovering lesser men who helped make the contributions of greater men acceptable and comprehensible. Indeed each of these lesser men may have a quality that makes him unique, worthy of special consideration. Such men also properly provide background and foreground; they fill in the crevices. The high peaks may rear far above the plain but not so far above the foothills. No one denies the overwhelming importance of Harvey and other men of that stamp, but we shall remain ignorant of a large sector of medical history if we stress Harvey to the complete neglect of Clowes or Jones or Hart[16] or any one of a dozen such men whose names are now known only to a few but who nevertheless constituted the backbone of the medical profession of their days.

Thirdly, we need exhaustive studies of and in medical literature, studies that to the uninitiated partake merely of the nature of glorified bibliography but actually reveal in outline the course of medical development. This involves also the very careful scrutiny of materials scattered hither and yon. Throughout the 16th, 17th, and 18th centuries an enormous *corpus* of medical literature came into being and its content has too often been exploited for evidences of quaintness alone. Readers have failed to grasp the spirit back of the letter and have seen only the errors or the window-dressing. It is submitted that no one has the right to scold

[16] William Clowes (1540?–1604), army surgeon and a member of the staff of St. Batholomew's and Christ's hospitals, wrote some of the best surgical works of the Elizabethan age. His *De Morbo Gallico* (1579) was a good compilation. Among his other influential pieces was *A Prooved Practise for all young Chirurgions concerning Burnings with Gunpowder* (1591) and a *Treatise on the Struma* (1602). He had a successful practice and invented an improved styptic powder. For his military career see Henry J. Webb, "English Military Surgery during the Age of Elizabeth," *Bull. of the Hist. of Med.*, XV (Mar., 1944), pp. 261–75. John Jones, who received his training at both Oxford and Cambridge, began to practice about 1560. In addition to the aforementioned book on pediatrics he wrote on agues, balneotherapy, and the practice of medicine generally, and translated a work of Galen's. Samuel X. Radbill, "John Jones, Phisition, the second writer on pediatrics in English," *Bull. of the Institute of the Hist. of Med.*, VI (Mar., 1938), pp. 145–62. James Hart (fl. 1633, b. 1580–90) traveled widely on the continent and secured his M.D. at Basle. His *Anatomie of Urines* (1625) exposed the fallacies of uroscopic diagnosis and attacked charlatans and unlicensed practitioners. His *Diet of the Diseased* (1633), though a compilation, revealed much common sense and showed an appreciation of such Hippocratic factors as a proper regimen and the influence of environment. In connection with the importance of obscure physicians, an analysis of the *Dictionary of National Biography* as a source of information concerning physicians and surgeons, their training, output, and contribution to knowledge, and also their proportion to the total number of subjects treated, might be worthwhile.

or despise a writer of those early days when his assumptions stood on all observable data and were refined, within the limits of possibility, by an attitude profoundly inquiring and non-credulous.

Fourthly, the public health policies of governments, central or local, warrant large and detailed examination. Throughout the records of quarter sessions, municipal councils, ancient courts, and parliament so much medical history comes to light. By a comparative analysis of professional literature and governmental measures, in times of crisis or not, one may discover for instance that public authorities showed a shrewder sense of the needs of the occasion than did many physicians. What is sometimes forgotten also is the presence in legislation primarily social or economic in character of rules that had a specific health purpose.

A fifth most profitable opportunity lies in the integration of medical developments with science in general, with other historical phenomena, both institutional and intellectual. It is perhaps a characteristic of any new discipline or of new phases of older disciplines that their adherents tend to pursue their investigations in a vacuum disregarding what has been accomplished by scholars in related fields as well as the general interrelation of many areas of learning. Heavily preoccupied with the narrower sources of their specialty and its terminology they overlook the fruitful generalizations and useful collections of knowledge already made along the borders. By attending to the neighboring developments they may likewise successfully resist succumbing to certain spurious periodizations or to the tags that label one age "dark" and another "enlightened" or one idea "medieval" and another "modern."

In this connection a recent project of Lynn Thorndike's warrants consideration from the viewpoint of medical history. He has compiled *Dates in Intellectual History: The Fourteenth Century*,[17] based essentially upon his own penetrating researches and specific interests. Admittedly incomplete and lacking in balance, this "trial balloon" suggests many fruitful possibilities: the persistence of certain tendencies and ideas, the popularity of certain works, the first known appearance of a particular concept, the absence of emphases that later writers have grafted onto a period, data on obscure as well as famous men, the acceptance of ideas measured by instruction or the reactions in the universities. Such a handbook, limited in its interests and specific in its attribution, would go far

[17] *Journal of the History of Ideas*, Supplement Number 1 (Lancaster, Pa., and New York, 1945).

to halt that easy descent into the pit of dubious generalization which hampers and deflects a sound understanding of historical phenomena. Medical history, as does any young discipline, stands in need of such an anatomy of precise, concrete facts; and any historian, possessed of average imagination, instinctively senses the existence of materials and employs his knowledge and appreciation of bibliography to cast his net wide and to search in out of the way places for grist for his mill.

Finally, with all the needs and opportunities, there is the obligation to study the history of medicine, as any other, from its sources, always remembering, of course, to be careful lest one find too quickly and too exactly what he is looking for. From the smug notion that the medical ideas of the past were only quaint, from the view that the only value of that past lies in its lessons for the present, Good Lord, deliver us. When these changes have occurred in the minds of medical historians and others, we shall be on the high road to a much sounder knowledge of the past and a much keener appreciation of historical values.

Medicine at Fort Detroit in the Colony of New France, 1701-1760

FANNY J. ANDERSON*

IN the year 1663, New France became a royal colony under the jurisdiction of the Minister of Marine. Its government was patterned after the provincial organization of France, with a governor, intendant, and royal council resident in the city of Quebec. Louis XIV and the astute Colbert proceeded to make strenuous efforts to increase immigration to Canada, and the population rose from 241 in 1648 to fifteen thousand in 1698.[1]

Charters granted to trading companies in the 17th century included stipulations for sending colonists to New France, and for maintaining them until they were able to support themselves.[2] Contributions for the relief of poor families already living in Canada were also included in the agreements.[3] As further encouragement, the King offered bounties to prospective settlers, dispatched unmarried women to provide wives for bachelors, and promised various other rewards.[4]

These efforts proved ineffectual, for the French people showed little inclination to leave their homeland. With the exception of the Huguenots, who were not encouraged to find refuge in Canada, there were few who sought religious freedom in a foreign land.[5] Nothing was to be gained, either, by exchanging the governmental restrictions of the mother country for those of New France, as Frenchmen, before the Revolution, were not allowed to move about freely within French territorial possessions as were the British and Hollanders in theirs.[6] After 1703, scarcely any effort was made by the government to encourage emigration to America.[7]

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[1] Reuben G. Thwaites, *France in America, 1497–1763* (American Nation Ser., VII; New York: Harper & Bros., 1905), p. 128; Maud E. Abbott, *History of Medicine in the Province of Quebec* (McGill University Publications, No. 63, Ser. VIII, Medicine; Montreal: McGill University, 1932), p. 14.

[2] Thwaites, *France in America*, pp. 38, 128; H. H. Miles, *History of Canada under the French Regime, 1535–1763* (Montreal: Dawson Bros., 1881), pp. 27–30.

[3] Antoine de la Mothe Cadillac, *Papers (1658–1730)*, Michigan Historical Society, *Collections*, 33 (1903), pp. 683, 574 (Hereinafter designated as *MPHC*).

[4] Thwaites, *France in America*, p. 128.

[5] R. B. Mowat and Preston Slosson, *History of the English-Speaking Peoples* (New York: Oxford University Press, 1943), p. 202.

[6] Marcus L. Hansen, *The Atlantic Migration, 1607–1860* (Cambridge: Harvard University Press, 1940), p. 7.

[7] Miles, *History of Canada*, pp. 252–53.

Like other European countries, France sent many of her social misfits to the New World, but in 1736 the governor protested that not enough of even these were arriving. "Only twelve salt smugglers were disembarked from the King's ships."[8]

Within the Colony, the governor wielded restrictive powers on those wishing to return to France. Soldiers, honorably discharged, were detained, and Beauharnois reported on October 6, 1740:

> There are not many who leave under certificates of medical unfitness for service. . . . The precautions which I took last year to make them remain in the colony with these certificates effectually takes away their eagerness to ask for them.[9]

One writer goes so far as to claim that the death penalty for deserters was invoked by the Colony itself.[10] Certainly, drastic measures were taken. Thomas Pownall, Governor of the British Colony of Massachusetts, informed the Duke of Cumberland in 1754:

> There is a fine settlement at Detroit of near Two Hundred Families. . . . The French Government does not encourage these [new settlements branching off from Detroit and other posts] and have, by a positive Ordonnance, absolutely forbid any one to make a Settlement without especial License which they found necessary to restrain Canadians from totally abandoning Canada.[11]

On the other hand, pioneer economy had no place for the aged and infirm who were unable to support themselves. The same Beauharnois wrote to his superiors in 1736:

> The man named Jean Charpé, who came to Canada under a *lettre de cachê* in 1735, is one who cannot find work to do. He is afflicted with a cancer in the cheek which alienates all who might be willing to employ him, so that he is a burden on the colony. We ask you for a countermanding order from the King to enable us to send this man back to France. . . . Another salt smuggler from Cossé was sent out in 1733, and begs you to have four children sent. This man, who is about thirty-five years of age, will become a good settler. His petition is forwarded. One man and wife are not to be allowed to return to France.[12]

No doubt the greatest deterrent to the settlement of the region of the Great Lakes was the climatic conditions.[13] Winters were long and severe.

[8] "Letter Endorsed by Beauharnois, October 5, 1736," Cadillac *Papers*, *MPHC*, 34 (1904), p. 135.

[9] "Governor Beauharnois to the King, October 6, 1740," *ibid.*, p. 108.

[10] Hansen, *The Atlantic Migration*, p. 7.

[11] Stanley M. Pargellis, *Military Affairs in North America, 1748–65. Selected Documents from the Cumberland Papers in Windsor Castle* (New York: Appleton-Century Co., Inc., 1936), p. 164.

[12] "Letter Endorsed by Beauharnois, October 5, 1736," Cadillac *Papers*, *MPHC*, 34 (1904), pp. 135–36. Cadillac accused de Vaudreuil, an earlier governor, of refusing to allow miscreants to settle at Detroit, "Remarks on Letters of Cadillac, 1708," Cadillac *Papers*, *MPHC*, 33 (1903), p. 391.

[13] Thwaites, *France in America*, p. 86.

In summer the low, marshy ground near the waterways made an ideal breeding place for the mosquito, and malaria was prevalent from late spring until the first frosts of autumn. Tuberculosis and other chest diseases, as well as rheumatism, were indigenous. On October 6, 1720, the Colonial government requested the importation of asses, because the milk from these animals was a "most efficacious remedy for the chest diseases" from which "a great number of persons were suffering."[14]

Another ailment which appeared seasonally, and was therefore thought to be contagious and epidemic in character, was scurvy, one of the most serious afflictions among the colonists. It was caused by a diet limited in the winter months largely to salted fish and meat. For checking the disease the Indians recommended to Jacques Cartier's men a decoction of young shoots of spruce.[15] Victims were left in a condition so weakened that they had no powers of resistance to infectious diseases, such as dysentery, typhoid, smallpox, and typhus fever.[16] Records show that the inhabitants of Fort Detroit suffered severely from this deficiency disease, known as "*Mal de terre*," in 1701, although the report of the Sieur Antoine de la Mothe Cadillac, its founder and commandant, on September 25, 1702, contained a glowing account of the settlement's well-being from the time of its founding. "I have had no one sick and no one has died, a thing which has been rarely seen in distant posts such as this."[17]

Very little was known about public hygiene before the 19th century, for science had not thrown off the fetters of superstition and ignorance, and had accomplished little as yet in its fight against disease. Sanitation and water supply were not considered the responsibility of the community; the householder disposed of rubbish and waste by throwing it into the street or a nearby river, from which he might also secure his drinking water. Extensive production of such commodities as soap, cotton underwear, and cheap pottery dishes had not as yet been facilitated by the

[14] Abbott, *History of Medicine*, p. 25; Harbert S. Birkett, "Brief Account of the History of Medicine in the Province of Quebec from 1535 to 1839," American Laryngological Association, *Transactions*, 13 (1908), p. 22.

[15] Edwin Seaborn, *March of Medicine in Western Ontario* (Toronto: Ryerson Press 1944), pp. 5, 14.

[16] Alfred F. Hess, *Scurvy, Past and Present* (Philadelphia: J. B. Lippincott, 1920), p. 3; Hans Zinsser, *Rats, Lice and History* (Boston: Atlantic Monthly Press, 1935), p. 156.

[17] John J. Heagerty, *Four Centuries of Medical History in Canada* (2 vols.; Toronto: Macmillan, 1928), I, p. 13; Miles, *History of Canada*, p. 181; "Description of Detroit, September 25, 1702," Cadillac *Papers*, *MPHC*, 33 (1903), p. 151. It is interesting to note that Arthur Pound in his *Hawk of Detroit*, a novel based upon Cadillac's administration in Detroit, portrays the founder as arriving in France from Canada, suffering from loosened teeth, the effects of scurvy.

Industrial Revolution. The ordinary citizen was unable to read and relied largely on medical folklore in combatting disease.[18]

Immigrants to New France were only too well-acquainted with the epidemics which periodically swept over the European continent. Heavy rains, comets, and other phenomena were thought to presage their approach; authorities were advised to remove filth and excreta to distant places and city gates were closed to strangers. While visiting patients, medical men donned special costumes designed to protect their wearers from the plague. They prescribed various potions and purgatives, and isolated victims. In spite of these frantic measures, however, each epidemic invariably ran its tragic course.[19] As late as 1865, members of the medical profession of Detroit advised an apprehensive city to accept a threatened visitation of cholera as a dispensation of Divine Providence.[20]

Before Jenner's discovery of vaccination in 1796, smallpox was one of the most virulent contagious diseases known. Never entirely absent, it frequently became epidemic in various parts of the world. There were few who did not bear its characteristic scars upon face or body, for, although inoculation was practiced in the 18th century, it was painful, dangerous, and expensive.[21] The disease was new to the American hemisphere, having been introduced by the Spaniards, and periodically decimated the Indian tribes.[22] Severe epidemics swept Canada in the winter of 1639–40, in 1669–70, and again in 1702–03.[23] Its presence was reported among the Detroit Indians in 1733 and in 1752.[24] An epidemic of two years' duration occurred in Canada from 1755 to 1757.[25] It was reported to the Duke of Cumberland from British Headquarters in Albany in 1756 that the pestilence was universal in North America. The French had suffered from it the year previous, infecting the Six Nations at

[18] Zinsser, *Rats, Lice and History*, p. 41; Bernhard J. Stern, *Society and Medical Progress* (Princeton: Princeton University Press, 1941), pp. 122–23.

[19] M. Laignel-Lavastine and M. Raymond Molinery, *French Medicine* (Clio Medica Series; Philadelphia: Paul B. Hoeber, 1934), pp. 80–81.

[20] City of Detroit, *Report of a Special Committee to the Board of Health, Suggesting Measures for the Prevention of Asiatic Cholera and the Promotion of the Public Health* (Detroit: Walker Barns & Co., 1865).

[21] Cecil K. Drinker, *Not So Long Ago; A Chronicle of Medicine and Doctors in Colonial Philadelphia* (New York: Oxford University Press, 1937), pp. 91–100; Fielding H. Garrison, *Introduction to the History of Medicine* (4th ed.; Philadelphia: W. B. Saunders, 1929), p. 421.

[22] Henry E. Siegrist, *American Medicine* (New York: W. W. Norton & Co., 1934), p. 32.

[23] Miles, *History of Canada*, pp. 102, 181; Abbott, *History of Medicine*, p. 61.

[24] "Letter Endorsed by Beauharnois," Wisconsin Historical Society, *Collections*, 17 (1906), p. 181; Clarence M. Burton, *Cadillac's Village, Or, Detroit under Cadillac, with a List of Property Owners and a History of the Settlement, 1701–10* (Detroit, 1896).

[25] Abbott, *History of Medicine*, p. 61.

Niagara, and now the cities of Albany and Philadelphia had fallen victims.[26]

Distance did not isolate the New World from the terrible scourges of the old. Disease frequently accompanied the King's ships carrying stores of supplies for the Colony. This was especially true of bubonic plague and typhus fever, or as the latter was familiarly called, "ship's fever." Quebec, the port of entry to Canada, was the starting point. Here were landed "soldiers and ex-prisoners, dregs from the prisons of France, covered with lice, eruptions, and loathsome diseases."[27] Montreal was the next port of call, and thence it spread throughout the French dominions. The event of the year in Detroit was the arrival, in the fall, of the year's provisions, transported in heavily armed fleets of trading canoes and batteaux, by way of the Ottawa River, Georgian Bay, and lakes Huron and St. Clair.[28] In 1721, during an epidemic of bubonic plague in Marseilles, the Colonial government recognized this peril by sea, by introducing quarantine regulations for incoming ships.[29]

The French government was not unaware of the problems of medical care for its rapidly expanding colonial empire in the 17th and 18th centuries. Physicians, surgeons, and apothecaries were attached to the Grand Master of Navigation. A physician-in-chief and a surgeon major were stationed at the principal ports to see that ships carried competent medical personnel, as every captain of a departing vessel was required to engage the services of a surgeon for the duration of his voyage.[30]

The first school of naval hygiene was opened in February, 1722, at Rochefort, at the instigation of that port's chief physician, Jean Cochon Dupuy (1674–1757). Later, similar institutions were established at Toulon, in 1725, and at Brest, in 1734.[31] In his request to the intendant of the port for the projected school, Dupuy reported that "ships from Canada and Isle Royale were in a deplorable condition of health." In 1720, de Vaudreuil and Begon, governor and intendant of New France,

[26] "Loudon to Cumberland, November 22, December 26, 1756," Pargellis, *Military Affairs*, p. 280.

[27] Abbott, *History of Medicine*, pp. 61–63; Birkett, "Brief Account," p. 21; William B. Howell, *Medicine in Canada* (Clio Medica Series; New York: Paul B. Hoeber, 1933), pp. 22–23.

[28] Richard R. Elliott, editor, *The Huron Mission of Detroit. The Account Book of Father Peter Potier, S.J., 1733–51.* (For *The Catholic Magazine*, 1891), p. 159.

[29] Heagerty, *Four Centuries*, I, pp. 25–26.

[30] E. L. Boudet, "Le Corps de Santé de la Marine et la Service Médical, aux Colonies au XVIIe et au XVIIIe Siècle (1625–1815)," *La Géographie*, 61 (1934), pp. 212–15.

[31] It was at Brest that Dominique Jean Larrey received his preliminary training before embarking as a naval surgeon aboard the corvette, *Vigilante*, on a cruise in Canadian waters to protect French fishing rights, 1787. *Ibid.*, 62 (1934), p. 46.

wrote asking him to designate a surgeon capable of serving at the Hôtel Dieu in Quebec, and an appointment was made the next year.[32]

The curriculum of the Rochefort school included several innovations. On the theory that the naval surgeon might be called upon to fill the triple office of physician, surgeon, and apothecary at sea, or when isolated in the colonies, the subjects of anatomy and physiology were taught. Such an idea was revolutionary at a time when in all parts of France surgeons were still confounded with barbers, and their instruction much neglected.[33] After 1736, because of the prevalence of diseases of the mouth and teeth, training in dental treatment was also given. This was especially true of scurvy, so often found among the crews of ships making the long voyage to Canada, Newfoundland, and Isle Royale.[34]

Graduates served in the colonies for three years, and were then eligible for appointment to ships.[35] Although this valuable education was available, there was still a lack of trained medical practitioners for the colonies. In 1740 twenty-eight were sent to Canada.[36] A report in September 1757 on the state of New France, by Louis-Antoine Bougainville (1729–1811), showed there were five hospitals in Canada, all well administered by religious ladies: at Quebec, the Hôtel Dieu and the General Hospital; two at Montreal, and one at Three Rivers. The King also maintained a physician and ten surgeons at Quebec, one physician at Montreal, one at Three Rivers, and surgeons at certain posts, such as Detroit.[37]

Until the Revolution swept away social barriers, there were distinct lines of demarcation within the medical profession in France. The physician jealously tried to maintain his intellectual supremacy by acquiring a theoretical education in a university. Instruction for surgeons was offered at the College of St. Côme in Paris, where five chairs of surgery had been endowed late in the 17th century. Five chairs of surgery had also been instituted at Montpellier University. But until 1743 surgeons were still officially associated with the barbers and wigmakers in the "Barber-Surgeons' Guild."[38] This relationship had developed from medieval times, when barbers and hairdressers treated minor wounds, opened abscesses and boils, or removed calluses for their customers. Blood-letting, by means

[32] *Ibid.*, 61 (1934), p. 344.
[33] *Ibid.*, p. 231.
[34] *Ibid.*, p. 344.
[35] *Ibid.*
[36] *Ibid.*
[37] Bougainville was a famous French navigator and explorer, aide-de-camp to Montcalm. His name is given to the largest of the Solomon Islands. "Mémoire de Bougainville, September, 1757," quoted in Boudet, *ibid.*, pp. 351–52.
[38] In 1802, Larrey presented a thesis on *Amputations* to the Faculty of the School of Medicine in Paris, and was the first to receive the new title of "Doctor of Surgery."

of venesection, cupping, or the application of leeches, was practiced extensively for all types of disease and often after injuries. This, too, fell within the province of the barber-surgeon. After 1372 barber-surgeons were assigned to the care of the ordinary soldier on the field of battle, where they obtained first-hand knowledge of their craft. Ambroise Paré (1510–1590), "Father of French Surgery," came from their ranks, and did much to improve surgical technique, as well as increase the prestige of his profession.[39]

Both the physician and surgeon used various medicines so complicated in their composition that trained apothecaries were necessary to compound them. Apothecaries, too, were hemmed in by traditional regulations. As early as 1271, the Faculty of Medicine of Paris forbade them to practice medicine, and until 1777 they were united in the same guild with the grocers, although their responsibilities were greater under the law.[40] According to the fourth edition of the *Pharmacopoeia of London*, published by the College of Physicians in 1721, extracts of animal products and excreta were still prescribed officially. The fifth edition (1746) listed spider webs, moss from human skulls, crabs' eyes, wood lice, pearls, vipers, Glauber's Salt, sweet spirits of nitre, syrup of squills, and potassium acetate.[41]

During the period of French colonization in North America, Paris was making a very real contribution to the study of medicine. It was the recognized center in Europe for surgical training, and clinical instruction was available at the famous Hôtel Dieu. The Faculty of the *École de Mêdecine* discussed the discoveries and contributions being made by such scientists as Harvey and Sydenham. The *Jardin Royal des Plantes*, a museum of living plants from all parts of the world, was fostered by Louis XIV.[42] Among the early colonists in Canada were men who had benefitted from the new scientific trends. Louis Hébert (1577–1627), surgeon apothecary of Paris, who settled in Quebec in 1617, and Robert Giffard (1587–1668), first physician to the Hôtel Dieu of Quebec; Michael Sarrazin (1685–1735) and Jean François Gaultier (1708–56) contributed to the *Jardin du Roi*, and were corresponding members of the *Académie Royale des Sciences*.[43]

[39] Fielding H. Garrison, *Notes on the History of Military Medicine* (Washington: Association of Military Surgeons, 1922, reprinted from *The Military Surgeon*, 1921–22), pp. 90, 115.

[40] A. C. Wootton, *Chronicles of Pharmacy* (2 vols.; London: Macmillan, Ltd., 1910), I, p. 320.

[41] *Ibid.*, II, pp. 59–69; Edward Kremers and George Urdang, *History of Pharmacy* (Philadelphia: J. B. Lippincott, 1940), p. 408.

[42] Abbott, *History of Medicine*, p. 24.

[43] *Ibid.*, pp. 14, 17, 24–27, 29; Kremers and Urdang, *History of Pharmacy*, p. 130.

Another link with the medical profession in the mother country was the royal commission as "Lieutenant of the Chief Barber Surgeon of the King in New France," conferred on Jean Madry (?–1669), surgeon major of the Hôtel Dieu of Quebec. It was issued by the Sieur Barnois, Premier Surgeon in Ordinary to the King and Provost of the Royal College of St. Côme, University of Paris, who also authorized him to establish a school of barber-surgeons in Canada. "All master barber-surgeons" were commanded "to obey the said Jean Madry in all matters relating to the said statutes and ordinances."[44] Jean Demosny (1643–87) succeeded Madry at the Hôtel Dieu, and as Deputy of the Chief Barber Surgeon of the King. An old contract, drawn up in 1675, is evidence that he trained apprentices, who were usually bound for a period of three years.[45] Apprenticeship continued to be the only means of medical training in Canada for many years after the French regime had ended. Letters patent, legalizing the practice of medicine, were granted freely in the Colony. Appeals for more stringent regulation were made by the surgeons, however, as early as 1712. Finally, in 1750, the intendant, Bigot, decreed that petitioners for letters patent must pass examinations before the King's Physician at Quebec, Montreal, or Three Rivers, in the presence of the Lieutenant General of the district or his delegate.[46] This law remained in effect throughout the closing years of the French regime.[47]

The French had been established in North America for more than a century when Fort Pontchartrain "d'Étroit" was founded on July 25, 1701, by the Sieur Antoine Laumet de la Mothe Cadillac (1658–1730). It was hoped that the new settlement would fulfill two purposes, serving as a depot for the western fur trade, and as a link in the chain of outposts along the Great Lakes and the Mississippi River to Louisiana, designed as a barrier against the British. Cadillac was a Gascon by birth, a son of the French nobility, who had been in the King's service for some time. He was an active man, with vision and imagination; these very qualities

[44] Abbott, *History of Medicine*, pp. 17–18; Birkett, "Brief Account," pp. 8–9.

[45] Abbott, *History of Medicine*, p. 18. The apprentice was known as a *garçon-chirurgeon*, Heagerty, *Four Centuries*, I, p. 238.

[46] Abbott, *History of Medicine*, pp. 29–31; Heagerty, *Four Centuries*, I, p. 315; Birkett, "Brief Account," p. 16.

[47] M. Pierre-Georges Roy, editor of the *Bulletin des Recherches Historiques*, informed the writer in a personal communication of September 17, 1945, that in all the years he had worked with records of the French period, he had never encountered the designation of *médecin;* the term used was *chirurgeon*.

helped to incur the hostility of the French bureaucracy, as well as that of the powerful Jesuit Order.

Another cause for friction with the Jesuits was the use of brandy and rum in dealing with the aborigines, a most effective inducement employed also by the British traders to great advantage.[48] The wide use of alcoholic beverages in the North American colonies, both French and British, probably had its origin in Europe, where people had learned from experience the dangers of contaminated drinking water.[49] In America, spirits added zest to the monotonous winter diet and gave comfort in braving the elements. While at Mackinac, Cadillac wrote, "A little brandy after the meal seems necessary to cook the bilious meats and crudities they leave in the stomach."[50] Father Potier of the Huron Mission entered, as a matter of course, in his *Account Book*, for January 20, 1751, "Chapoton, Surgeon, has purchased through Navarre, Robert, a cask of *eau de vie*- 80 livres."[51] "*Un pot de vin*" was listed among the necessities doled out by the Government between 1749 and 1752 to Michel Yacks, a German who had come from Pennsylvania, and remained permanently in Detroit.[52]

While he was stationed at Mackinac, Cadillac had seen the possibilities of establishing a post on the shores of the Detroit River. His plan was a pretentious one for its time. Indians, tribes and nations, were to be encouraged to settle in villages near the fort. This patronage was to yield to the post a rich harvest in peltries.

The initial investment in the venture was borne by the King, this expenditure to be repaid and subsequent expenses assumed by the "Company of the Colony," a chartered commercial group, which had been granted the monopoly of trade on October 31, 1701.[53] Cadillac set out from Montreal on June 2, 1701, with 100 men, 50 soldiers and 50 settlers, and three months' provisions. Among the settlers were included such artisans as boatmen, armorers, clerks, trappers, and interpreters, for the fur industry involved the labor of various workmen.[54] On arriving at the future site of his settlement, a fort, a church, dwellings, and warehouses

[48] Francis A. Parkman, *Half-Century of Conflict* (2 vols.; Boston: Little, Brown & Co., 1909), I, p. 20.

[49] Zinsser, *Rats*, p. 271.

[50] "Cadillac to ———, August 3, 1695," quoted in Parkman, *Half-Century*, I, p. 20.

[51] Elliott, *The Huron Mission*, p. 161.

[52] *Record of Land Grants at Detroit, with Listed Donations (Rations and Utensils) and Loans (Grain and Annuals), Detroit, 1749–52.* Edward V. Cicotte, *Papers, (1810–1892)*, Manuscript; Burton Historical Collection.

[53] "Traité Fait avec la 'Campagnie de la Colonie de Canada,' 31 Octobre, 1701," Parkman, *Half-Century*, I, p. 29. Cadillac was not informed of this agreement until July 18, 1702. The Company then agreed to pay him a salary of 2000 francs per year and furnish supplies for his family.

[54] Miles, *History of Canada*, p. 134.

were erected with dispatch, and some crops were even planted the first year.

Although the "Company of the Colony" was in control of the trade of the post before 1704, the commandant represented the Royal Council at Quebec. Locally, his decisions were final, for French law was not extended to sparsely settled regions.[55] Unlike the British colonies along the Atlantic Coast, self-government, such as the town meeting or popular assembly, was unknown.[56] Even in this far outpost of empire, there were remnants of class distinctions, feudal traditions, and old manorial usages from France.

On June 30, 1707, King Louis XIV, in his order for an inspection of the western posts, noted that there was no one at Detroit to care for the sick, and that Madame Cadillac and her daughter had assumed this duty.[57] It was in the old French tradition that the Lord and Lady of the Manor looked after the health of their dependents. The Lord was frequently called upon to treat illnesses and minor accidents, for which he prescribed a number of nostrums, many of them compounded from herbs and plants grown for the purpose in his garden, and prepared under the supervision of his Lady.[58] Pioneer women of America had brought with them a knowledge of European herbal remedies, and, in addition, acquired much of the Red Man's lore. These old times may be recalled by a visit to the stalls of the herb vendors in the market place of Quebec:

> Wild angelica for digestion and general health, fresh spruce bark for ailing kidneys, clear golden pitch of fir balsam, the native Algonquin remedy for frost bites and sores. On these stalls, the Indian Pharmacopoeia blends with the Seventeenth Century wisdom of peasant France.[59]

Herbs were hung from the rafters of the gabled houses of the habitants in Detroit. (Garlic was specifically mentioned as a preventive against cholera.)[60]

In a communication of March 31, 1706, Cadillac requested a "medicine chest to be used for soldiers and officers who may need it in their ill-

[55] Territory of Michigan. *Laws* (4 vols.; Lansing: W. S. George, 1871), I, p. 111.

[56] Mowat and Slosson, *History*, p. 51; Thwaites, *France in America*, p. 130.

[57] "Instructions to the Sieur D'Aigremont, Subdelegate of the Sieur Raudot, Intendant of New France, Selected by the King, Versailles, June 30, 1707," Wisconsin Historical Society *Collections*, 16 (1906), p. 244.

[58] Katherine Fedden, *Manor Life in Old France, from the Journal of the Sire de Gouberville for the Years 1549–1562* (New York: Columbia University Press, 1933), Chapter 16, pp. 146–50.

[59] Henry Beston, *The St. Lawrence* (Rivers of America Series; New York: Farrar & Rinehart, 1942), pp. 26–27.

[60] Marie C. W. Hamlin, "Old French Traditions," *MPHC*, 4 (1881), p. 70.

ness."[61] This chest must have been furnished at his own expense, for in the "Inventory of Personal Property and Real Estate belonging to M. de la Mothe Cadillac, August 25, 1711" is the item, "1 surgeon's chest, with 11 lead boxes with its key." One of the lead boxes may have contained the quarter pound of senna listed in the same document.[62] Similar chests formed part of the equipment of physicians and surgeons in the army and on ships.

The founder had intended to invite nursing sisters, preferring "the hospitalers of Montreal," to found a hospital "for sick or infirm savages in order to gain their friendship."[63] This idea was not without precedent. In 1635 Father Lejeune, a Jesuit in Quebec, wrote to France, "If we had a hospital here, it would do more to convert the savages than all our journeys and sermons." As a result, the Duchesse d'Aiguillon, a niece of Richelieu, was instrumental in establishing the Hôtel Dieu of Quebec, in 1638.[64] On March 31, 1706, a request was forwarded for "135 ells of linen for 30 pairs of sheets, for the soldiers, for there is no hospital at Detroit" — nor would there be for another century and a half.[65]

A disastrous fire in the fall of 1703 destroyed valuable civil and church records, and although Cadillac tried to replace them, there must necessarily have been irreparable losses. Whether or not a surgeon accompanied the original settlers of Detroit can not be proved satisfactorily. A letter written by Cadillac on September 25, 1702, discloses the fact that Madame Cadillac was expecting a child. This is no clue as to the presence of a physician in the settlement, however, for he would probably not have officiated at the confinement in any case. Although the mistress of Louis XIV had been attended by a male accoucheur in 1663, midwifery was still largely in the hands of women, who were often ignorant, dirty, and superstitious.[66] Indeed, very little progress had been made in obstetrics at this early date. The forceps had been invented by Peter Chamberlen, a Frenchman, but was kept secret, and not generally used until about 1733.[67] During the 18th century, the King sent out midwives on a salaried basis, one of these receiving 400 livres per year in 1722.[68]

The same letter of September 25, 1702, mentioned above, throws some

[61] "Reply of the Governor General to a Memorial Presented by M. de la Mothe Cadillac, March 31, 1706," Cadillac *Papers*, *MPHC*, 33 (1903), p. 254.

[62] *Ibid.*, 34 (1904), p. 274.

[63] "Letter endorsed by Cadillac, October 18, 1700," *ibid.*, 33 (1903), p. 99.

[64] Abbott, *History of Medicine*, pp. 21–22.

[65] "Reply of Governor General to a Memorial Presented by Cadillac, March 31, 1706," *MPHC*, 33 (1903), p. 254. St. Mary's Hospital, Detroit, the oldest Hospital in Michigan, was founded in 1845.

[66] Garrison, *Introduction to History of Medicine*, p. 298.

[67] Drinker, *Not So Long Ago*, p. 62.

[68] Abbott, *History of Medicine*, p. 28.

interesting social sidelights on the infant care and mortality of the period. No women accompanied the original expedition to Detroit. Mme. Cadillac and the wife of Alphonse de Tonty, Cadillac's lieutenant, arrived in May, 1702, after wintering at Fort Frontenac [Kingston]. Other women came in 1703. In urging his superiors to send more settlers, Cadillac wrote from Quebec:

> It is not possible that our families could live in a place inhabited by savages only. Their distress would be extreme for they would be without any relief; as happened to Madame Tonty, who saw her infant die for want of milk, which she had not anticipated. I fear the same may happen to my wife, who was about to be confined, when I left. That is not extraordinary, because these ladies have wet nurses for their children. Hence, there can be no hesitation in sending them down next year unless a few families are permitted to go and settle there [at Detroit].[69]

Apprehension for his unborn child was well-founded. The death-rate of infants in the 18th century was extremely high, for artificial feeding of infants was practically unknown, and unless a child was nursed by its mother or a healthy wet nurse its chances of survival were slight. By 1762, the pernicious practice of hiring wet nurses had reached such proportions in France that Jean Jacques Rousseau denounced it in his *Emile*.[70]

Cadillac in 1702 commented on the excellent state of health enjoyed by his community, and again, on August 31, 1703, he wrote, "No one has died yet at this post."[71]

He had long been at odds with the officials of the trading company, and in 1704 was ordered to Quebec to stand trial on charges made against him. These were proved false, and he was not only acquitted on June 5, 1705, but was also granted the trading monopoly at Detroit, formerly enjoyed by the Company. With these privileges, however, went certain responsibilities:

> His Majesty's will is that this trade shall belong to the Commandant of the Post, and that he shall be responsible for all expenses of the said post. . . . His Majesty includes in the cost of the officers and soldiers, which the Commandant is to bear, that of the almoner and the surgeon; of the remedies necessary in sickness; the conveyance of the apparel of the officers and soldiers, also the cost of presents to the savages, the missionary, the blacksmith and the armorer who must also serve to repair the arms of the troops.[72]

[69] "Report to the French Minister by Cadillac, September 25, 1702," *MPHC*, 33 (1903), p. 159.

[70] Garrison, *Introduction to History of Medicine*, pp. 311, 411.

[71] "Description of Detroit by Cadillac, September 25, 1702," Cadillac *Papers*, *MPHC*, 33 (1903), p. 151. "Report by Cadillac," Cadillac *Papers*, I, p. 220, Manuscript; Burton Historical Collection.

[72] "Reply of the Governor General to Memorial of Cadillac, March 31, 1760," Cadillac *Papers*, *MPHC*, 33 (1903), p. 256.

The Commandant discovered an ingenious means of furnishing "refreshments for the sick," which he discloses in a report on September 15, 1708:

In Canada, officers draw the pay of soldiers who work. They are treated in the same way at Detroit. I have made an estimate of it, amounting to a small sum which might be used for refreshments for the sick. A soldier who works at Detroit is by no means to be pitied, as he can earn from 700 to 1000# and more a year.[73]

With the elimination of the Company from the Colony, Cadillac proceeded to enlarge and improve the post. The advent of settlers from the East made the services of a surgeon more urgently needed. This may have been the reason for the request made to the Governor:

As the garrison will be unable to do without a surgeon, I beg that you will consent to have pay to the amount of 300 livres issued to one whom I will propose to you, capable and suitable to that place.[74]

Was this man "Henri Belisle, Chirurgeon," whose name appeared for the first time in the Register of Ste. Anne's Church on April 27, 1704, when he officiated as godfather to the daughter of Pierre and Marguerite Roy?[75] His signature does not appear again on a legal paper until July 5, 1707, when he witnessed the sale of property, after which, it was affixed to various papers until 1710.[76]

Belisle was born in St. Michel-le-Palus, Angers, France, the son of an apothecary, Anthony Lamarre. He studied medicine before migrating to Quebec, where he married Catherine DeMosny (?-*ca.* 1701) on June 26, 1690. His wife was the daughter of Jean DeMosny who had succeeded Jean Madry as surgeon major at the Hôtel Dieu and to his office as Deputy

[73] "Report by Cadillac," Cadillac *Papers*, I, p. 413, Manuscript; Burton Historical Collection. The symbol # refers to the French *livre*, the nominal value of which was twenty sous.

[74] "Reply of the Governor General to Cadillac's Memorial, March 31, 1706," Cadillac *Papers*, *MPHC*, 33 (1903), p. 256.

[75] "A List of French Settlers at Detroit, 1701–1796," Theodore P. Hall *Papers* (*1835–1909*), compiled in part from the records of Ste. Anne's Church, includes the name of "Pierre du Roy, Doctor." Lot 50 within the fort was granted to a settler of the same name on March 10, 1707; Lot 51 was granted to "Pierre Roy," Cadillac *Papers*, *MPHC*, 33 (1903), p. 377. Cyprien Tanguay, *Dictionnaire Généalogique des Familles Canadiennes, depuis la Fondation de la Colonie jusqu'à Nos Jours* (7 vols.; Montréal: Eusebe Senécal et Fils, 1871–90), I, p. 220, records the marriage of a Pierre du Roy (1650–1723), giving him the title, *Médecin*, and Marguerite Le Vasseur (1667–1739) at Quebec, on February 21, 1689. M. Pierre-Georges Roy, Editor, *Bulletin des Recherches Historiques, Organe du Bureau des Archives*, Quebec, states in a personal communication of September 17, 1945, "L'acte de mariage de Du Roy à Québec le designe comme *marchand* et non comme *médecin*." No records were found to indicate that Pierre du Roy of Quebec was ever in Detroit.

[76] Belisle witnessed the sale of property in 1707, 1708, 1709, 1710, Cadillac *Papers*, *MPHC*, 34 (1904), pp. 237, 256, 257, 263, 265, 294; he witnessed a marriage contract in 1710, *ibid.*, p. 266.

of the Chief Barber-Surgeon of the King in Canada.[77] On November 26, 1705, his second marriage was solemnized at Champlain, Quebec, to Frances Dandonneau, a widow with two sons. The family was known to have been in Detroit on September 26, 1706.[78]

In 1710 Cadillac's enemies were at last successful in removing him by securing his "promotion" to the governorship of Louisiana, and de la Forest, his lieutenant, became commandant of Detroit. As the latter was unable to take over his new post because of ill health, the Sieur Charles Regnault Dubuisson came in his stead. Conditions in the settlement are best described in a letter addressed to Cadillac, then in Quebec, by Father Cherubin de Nian, Recollet missionary, August 24, 1711:

> In fact, sir, Detroit is all in a commotion, both within and without; order and subordination, whether spiritual or civil, no longer exist. . . . M. Dubuisson has had the fort cut into halves, has turned Mme [Cadillac?] out and also the church, and consequently me, with the six chief families here . . . ; I have forgotten the surgeon who is not less necessary than the interpreter. . . . The condition of Detroit would affright you.[79]

Madame Belisle died and was buried in Ste. Anne's Churchyard on May 9, 1711. This sorrowful event, together with Dubuisson's behavior, no doubt, decided Belisle's departure for Montreal.[80] On August 25, 1712, his third marriage took place there, and his name is one of those on the list of medical practitioners in Montreal from 1712 to 1740.[81] His death occurred before 1749.[82]

In 1712, Dubuisson gave a colorful account of an Indian war, in which Detroit was "threatened" by a horde of blood-thirsty savages, which he triumphantly repulsed. Although his story has been discredited, one item in the report of his preparations for the siege is of interest, "Our Reverend Father held himself ready to give a general absolution in case of necessity, and to assist the wounded if there should be any."[83]

[77] Tanguay, *Dictionnaire*, II, p. 205; Christian Denissen, *Geneology of the French Families of Detroit* (Typescript, 25 vols.; Burton Historical Collection), II, pp. 876–77. The name appears in various forms: "Belille," in C. M. Burton, *Cadillac's Village*, p. 20; "Belisle-Levasseur" and "de Lile," in Heagerty, *Four Centuries*, I, pp. 224, 235; "Lemarre dit Belisle" in Louise Rau, "Three Physicians of Old Detroit," Burton Historical Collection, *Leaflets*, 8 (1929), pp. 17–32.

[78] Denissen, *Geneology*, I, pp. 876–77.

[79] Cadillac *Papers*, *MPHC*, 33 (1903), p. 517. After her husband's departure for his new post in Louisiana, Madame Cadillac remained in Detroit to look after his business interests. Cadillac claimed reimbursement from the King for certain investments in Detroit, "Inventory of Personal Property and Real Estate Belonging to M. de la Mothe Cadillac, August 25, 1711," Cadillac *Papers*, *MPHC*, 34 (1904) pp. 267–77.

[80] Denissen, *Geneology*, II, pp. 876–77.

[81] Heagerty, *Four Centuries*, I, p. 235.

[82] Denissen, *Geneology*, II, pp. 876–77.

[83] Charles R. Dubuisson, *Official Report Made by the Commanding Officer, Mr. Dubuisson, to the Governor General, of the War Which Took Place at Detroit in 1712 between the French and their Allies and the Ottagamie and Mascoutin Indians* (Detroit: Harsha, 1845), p. 6.

Little is known of Jean Baptiste Forestier, the next surgeon in Detroit of whom there is any record. He was born in Montreal on November 16, 1688.[84] His father, Antoine Forestier (1646–1717), was one of the two official surgeons of the Hôtel Dieu in Montreal. He was prominent, also, as a medical jurist, and another son, Antoine Bertrand (1687–1742), was regarded as the leading surgeon of the time in his native city.[85] That Jean Baptiste Forestier was in Detroit on November 26, 1715, with the title of "surgeon," and that he was in possession of a lot on St. Louis Street within the fort on November 4, 1721, is the extent of our knowledge about him.[86] It is not inconceivable that he served as an apprentice under his father to secure his surgical training.

The name of Jean Baptiste Chapoton (1684–1760) first appears in the records of Ste. Anne's Church on January 29, 1720, and on November 4, 1721, a notation was made that a lot on Ste. Anne Street had been transferred to "Chapoteau" [*sic*], surgeon of the fort.[87] A native of Bagnoles in Languedoc, he had studied surgery before entering the French Army, and is designated in the archives as "chirurgeon major."[88] This military rank was officially used in the French Army Medical Corps, which was created by Royal Edict on January 17, 1708.[89] On July 16, 1720, his marriage is recorded to Mary Magdalene Estève, then 13 years of age, by whom he had 22 children. He was buried in Ste. Anne's Churchyard on November 12, 1760.[90] "During forty years, his elegant and stereotype-like signature appeared on every death notice in the colony."[91] Chapoton was the only surgeon under the French regime to remain per-

[84] Tanguay, *Dictionnaire*, I, p. 235; Denissen, *Geneology*.

[85] Abbott, *History of Medicine*, pp. 19, 20; Heagerty, *Four Centuries*, I, pp. 232, 235; Howell, *Medicine in Canada*, p. 19; M. J. and George Ahern, *Notes pour servir à l'Histoire de la Médecine, dans le Bas-Canada depuis la Fondation de Québec jusqu'au Commencement du XIXe Siècle* (Québec, 1923, Reprint from *Bulletin Médical de Québec*), pp. 226–30.

[86] Denissen, *Geneology;* "Statement of Sites Occupied by Inhabitants of the Fort of Detroit," *MPHC*, 33 (1903), p. 688. A brother, Peter Forestier (1693–?), was living in Detroit on December 25, 1720, Denissen, *Geneology*. Dr. William W. Francis, Librarian, Osler Library, McGill University, was unable to find any records regarding Jean Baptiste Forestier, although records of other members of the family were found, Personal Communication, August 27, 1945.

[87] "Statement of Sites Occupied by Inhabitants of the Fort of Detroit," *MPHC*, 33 (1903), p. 689.

[88] This title was also used by the Marine *Corps de Santé*, described by Boudet.

[89] Laignel-Lavastine and Molinery, *French Medicine*, p. 147; Garrison, *Notes on Military Medicine*, p. 138; . . . Sieur, "Tribulations of the Medical Corps of the French Army from Its Origin to Our Own Time," *Military Surgeon*, 64 (1929), pp. 843–56. Personnel of the Army Medical Corps was composed of 200 physicians and surgeons, previously given appropriate examinations; 138 surgeons major were the lowest ranking members.

[90] Reuben G. Thwaites, editor, *Travels and Explorations of the Jesuit Missionaries in New France, 1610–1791* (73 vols., Cleveland: Burrows Bros. Co., 1901), LXIX, p. 308.

[91] Marie C. W. Hamlin, *Legends of Le Détroit* (Detroit: Thorndike Nourse, 1884), p. 273.

manently in Detroit, and take an active part in the life of the community. His descendants were also prominent in the city's history.[92]

Gabriel Christophe Legrand, the last surgeon to serve Detroit under the French, was born in the Diocese of Avranches, Normandy, the son of the Sieur de Sintré, a French nobleman. He, too, is supposed to have enlisted in the French Army, and to have come to Detroit with the rank of "surgeon major," on his predecessor's retirement in 1752.[93] His marriage to Marie Madeline Chapoton (1739–62), daughter of the surgeon, took place on April 17, 1758. Three children were born of the marriage, two of whom died in infancy. Madame Legrand's will, drawn up on December 29, 1762, discloses that the family resided in a house on St. James Street, purchased by Surgeon Legrand; that his sister, Anne Legrand, also lived in the settlement; and that Jean Baptiste Chapoton had not provided a dowry for his daughter. Madame Legrand, being unable to write, affixed her mark to the document.[94]

Dr. George Christian Anthon, the British army surgeon, accompanied Major Rogers to take over Fort Detroit from the French, and Legrand automatically lost his commission as surgeon to the post. His appointment as judge, on May 20, 1763, may have been very welcome financially; he could still carry on his first occupation among the French citizens of the town.[95] That he was considered a leader among them may be deduced from an episode recorded by the anonymous author of the *Journal of Pontiac's Conspiracy:*

> The Commandant, [Major Henry Gladwin] who had a plan to send one of the sloops to Niagara to hasten the arrival of reinforcements, which he had been expecting a long time, gave orders to Mr. Legrand, appointed judge in place of Mr. St. Cosme, that all the French in the Fort should pick up the stones in the streets and carry them to the edge of the river to ballast the vessel which was about to sail.[96]

On July 26, 1764, Legrand married Veronica Reaume, by whom he had eight children. He acted as a notary in a land transaction in 1776, and this record, with the entry of the birth of a daughter the same year, is

[92] Friend Palmer, in his *Early Days in Detroit* (Detroit: Hunt and June, 1906), pp. 589, 630, 632, refers to Jean Baptiste Chapoton II as also being a physician. No records are found to verify this statement.

[93] Tanguay, *Dictionnaire*, V, p. 299; Denissen, *Geneology*.

[94] Milo M. Quaife, "Some Glimpses of Life in Ancient Detroit," Burton Historical Collection, *Leaflets*, 3 (September, 1924), pp. 9–10.

[95] Clarence M. Burton, *City of Detroit, Michigan, 1701–1922* (5 vols.; Detroit: S. J. Clarke Publishing Co., 1922), I, p. 169.

[96] M. Agnes Burton, editor, *Journal of Pontiac's Conspiracy, 1763* (Published by C. M. Burton, under the auspices of the Michigan Society of Colonial Wars, 1912), p. 112.

evidence that he was probably still residing in Detroit then. Later, he went to Kaskaskia as a notary, and by confusing titles succeeded in raising the ire of the land commissioners.[97]

Some insight into the economic status of these early medical men may be acquired from contemporary records. During Cadillac's administration it can be assumed from his communication requesting a surgeon for the post that Belisle received 300 livres per year, although he may have received only 150, the salary paid by Sabrevois, commandant from 1714 to 1717.[98] From 1706 to 1709 the surgeon and master armorer were paid by the King; after this time, Cadillac was notified that he must defray these expenses, an ultimatum which he vigorously protested.[99]

After 1730 the French Government became alarmed by the encroachments of the British, and serious consideration was given to improving the western posts and increasing troops and militia. The system of granting the monopoly of trade to the commandant at Detroit had not proved successful in encouraging settlers.[100] In 1749, forty-six persons — men, women, and children — were sent out, with the understanding that they were to receive assistance from the Government, in the form of supplies and implements, for a period of two years.[101]

At the same time, a new plan was put into operation, whereby the salary of the commandant and the other expenses of the fort were to be paid from the proceeds of the sale of trading licenses.[102] But again the French were faced with an old weakness in the formulation of their schemes. Somewhat despairingly, Governor de Vaudreuil reported in 1755:

> That post [Detroit] is a considerable one, and is well populated, but three times as many families could easily be settled there as are now on the spot. Unfortunately, we have not enough people in the Colony.[103]

[97] Burton, *City of Detroit*, I, p. 169.

[98] "Reply of the Governor General to Cadillac's Memorial, March 31, 1706," Cadillac *Papers MPHC*, 33 (1903), p. 156; "Letter Endorsed by Sabrevois," *ibid.*, 34 (1904), p. 312.

[99] "Extract of the Memorial Presented to the Council of the Navy by M. de la Mothe Cadillac, November 4, 1721," Cadillac *Papers, MPHC*, 33 (1903), p. 683; "Correspondence between Cadillac and the French Government, 1708, 1720, 1722." Cadillac *Papers, MPHC*, 33 (1903), pp. 391, 392, 452, 668–69; *ibid.*, 34 (1904), pp. 36–37, 40.

[100] See extensive correspondence between Governors and Intendants with French Minister, in *MPHC*, 34 (1904), and in Wisconsin Historical Society, *Collections*, 17 (1906).

[101] "La Jonquière and Bigot to French Minister, October 5, 1749, October 10, 1750," Wisconsin Historical Society, *Collections*, 18 (1908), pp. 30–32, 74–75; *Record of Land Grants at Detroit*, Edward W. Cicotte, *Papers*, Manuscript; Burton Historical Collection.

[102] "French Minister to La Jonquière and Bigot, Marly, May 14, 1749," Wisconsin Historical Society, *Collections*, 18 (1908), pp. 27–29.

[103] "Vaudreuil to the French Minister, October 30, 1755," *ibid.*, pp. 156–57.

Bougainville described the situation graphically during his visit in 1757:

> Detroit is an important entrepot of the southern forts which communicate with Illinois. Lands are rich and easy to cultivate. There are about 200 inhabitants, who have abundant provisions and cattle, and who furnish flour to the different posts of the upper country. . . . The post is exploited by licenses whose price is usually 500 francs payable in cash, and whose number is not fixed. Charges supported by the licenses are, for the commandant, 3000 francs, second in command, 1000 francs, subalterns, 500 francs, subdelegate, 600 francs, interpreter, 500 francs, chaplain, 500 francs, surgeon, 300 francs. Each canoe is obliged to carry 400 livres weight of merchandise for officers and other employes of the post; in consequence, the officers engage in trade, and there are abuses to correct. . . . There issues from this post between 800 and 1000 packages of peltries.[104]

Comparison of the salaries of the various officials of the post reveals that the surgeon was evidently not considered of much importance.

It is not strange that pelts were the basis of payment in business transactions. Instances are plentiful in the *Account Book* of Father Peter Potier, S.J., of the Huron Mission. Under date of June 13, 1742, he made the entry, "Surgeon Chapoton of the fort has been loaned 100 livres worth of furs to be paid for in kind in May, 1743, at Detroit."[105] The Government itself accepted furs as legal tender, when stipulating payment for land grants. In 1734 Chapoton received a plot of land which was later returned to the Government because its distance interfered with his duties at the fort. The deed to another site was granted him in 1743. Payments for both properties were to be made "in peltries at Detroit prices until a current money shall have been established."[106]

Until about 1730, when Robert Navarre was appointed Royal Notary at Detroit, the oldest and most reliable source of statistics was the Register of Ste. Anne's Church. In 1703, the church was destroyed by fire, but the records were replaced and verified by Cadillac in 1709.[107] During the entire French occupation of Detroit, 998 baptisms, 147 marriages, and 475 deaths were recorded.[108] Since the Detroit River was not a territorial bar-

[104] "Memoir of Bougainville," quoted from Pierre Margry, *Relations et Mémoires Inedits* (Paris, 1867), pp. 39–84, *ibid.*, pp. 169–70.

[105] Elliott, *The Huron Mission*, p. 162.

[106] Jean B. Chapoton, *Papers* (1684–1760), "Deed from the Governor of Canada, July 7, 1734," Manuscript; Burton Historical Collection; "List of Lands Granted at Detroit, July 1, 1734," *MPHC*, 34 (1904), p. 121; Quaife, "Some Glimpses of Life in Ancient Detroit," Burton Historical Collection, *Leaflets*, 3 (September, 1924), pp. 3–5. Victor C. Gnau, Register of Deeds Office, Wayne County, points out the use of the term "buck," when Harson's Island was deeded by the Indians in 1797. Among other considerations, one hundred fifty dollars, or Bucks, was involved in the transaction.

[107] Burton, *City of Detroit*, I, p. 113.

[108] *Ibid.*

rier, but a means of communication, the registers of Assumption Parish at Sandwich, Ontario, also offer valuable information.[109]

A census taken in February 1750 presents an excellent picture of Detroit toward the close of the French period. The total population of 483 was composed of 96 men, 80 women, 49 boys, and 33 girls of 15 years or over, 97 boys and 95 girls under 15, and 33 slaves.[110] Surgeon Chapoton's family and assets are enumerated:[111]

Femmes	1	Arpents de terre en valeur	50
Garcons de 15 ans et au dessus	3	Gerbes de froment	1200
Filles de 15 ans et au dessus	1	D'Avoine	303
Garcons au dessous	1	Chevaux	3
Filles au dessous	2	Boeufs	4
Esclaves	0	Vaches	13
		Cochons	2
		Volailles	20

It is unfortunate that old records contain only a few dates and signatures to mark the passing of the medical men who served Detroit for 60 years. Regarding the personalities of the men themselves, their medical concepts, or the events which influenced their lives, we can only conjecture. No military reports have come to light to tell of their skill or accomplishments, nor are there eulogies or obituaries written by grateful patients. That they did leave some impression on the Indians is affirmed by the petition of the Ottawas, during George Croghan's visit to Detroit, in 1767, as a representative of the conquering British:

> Father, when the French had this Country, they always kept a Doctor to attend our Sick People at this Place, and for some time after You came here, You did the same; We are now and have been this Summer past very Sickly for want of a Doctor to attend us as formerly. We have lost a Number of People. We therefore beg You'll let us have a Doctor to attend us when Sick.[112]

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[110] "Detroit in 1750," Burton Historical Collection, *Leaflets* (May, 1939), pp. 12–13. Dr. Milo M. Quaife, editor, notes the disparity between the boys and girls in the age group of 15 years and over, and ascribes it to the fact that girls married commonly at 16 or 17, occasionally at 14 years of age.

[111] Detroit. *Denombrement des Habitants du Detroit au 1er Febre., 1750*. Photostat copy in Burton Historical Collection. Original in Montreal.

[112] Howard H. Peckham, editor, *George Croghan's Journal of His Trip to Detroit in 1767* (Ann Arbor: University of Michigan Press, 1939), p. 44.

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A Doctor and His Books: Harvey Cushing and His Library

RECOLLECTIONS OF HARVEY CUSHING AND HIS BOOK-COLLECTING

E. P. GOLDSCHMIDT*

ONE of the first times Dr. Cushing came to my Bond Street office (together, I think, with his friend, Dr. E. C. Streeter) I sold him the Magnus Hundt *Anthropologia* of 1501 with its astonishing skeleton broadside, of which only two other copies are known. I was thoroughly convinced of the extraordinary interest and rarity of this early curiosity and my enthusiasm expressed itself in a very stiff price. Dr. Cushing paid that price without wincing. From this fact I felt entitled to draw the conclusion that here was a collector keen on bones. His further instructions to me on the authors and titles he was interested in: Vesalius, Paré, Ryff, and others like that, confirmed the impression, which was correct in those early years, that Dr. Cushing was primarily interested in the history of anatomical illustration, and that any early book with bones in it was likely to appeal to him unless he possessed it already.

In the following year, 1929, I set out for the first time on a trip across the Atlantic to visit my American customers in their homes. I tried to bring together a collection of books to take with me to show, and my aim was to have one really important item in the special line of each one of my chief customers. I had found a good and complete copy of Paré's *Dix livres de chirurgie*, 1564, a much rarer book than the *Cinq livres* of 1572, so I thought this would be the thing to bring along to Dr. Cushing. When I reported myself as having arrived in Boston, he invited me to his house and we had a grand talk about books. After a time he said: "Well, did you bring anything with you to show me?" "Oh, yes," I said, "I brought a very rare octavo of Paré, the *Dix livres*." "Oh, the *Dix livres*? That is indeed a scarce and interesting book," he said, "do you know that there are

* Antiquarian of London. This paper and the two following were read at a meeting of the Section of the History of Medicine of the Royal Society of Medicine, 1 Wimpole Street, London, England, held on 3 January 1945, and are published by permission of the Honorary Editors.

two different variants of the 1564 edition of the *Dix livres*?" And he got up and took me to his bookshelves, and there was a whole row of octavo Parés, about 12 or 15 of them, including two slightly differing copies of the book I had meant to tempt him with. Obviously the task of supplying Dr. Cushing with important books on anatomy which he did not yet possess was by no means simple.

My talks with Dr. Cushing on this and on following occasions, both here and in America, led to a better acquaintance with his wider field of interest which was by no means confined to "bones." Beyond the history of anatomy, he turned out to be interested in the history of surgery, then in the history of medicine generally. In the course of time the range of our talks spread out and it soon was apparent that Dr. Cushing, who had started with his Vesalian hobby, had conceived a plan of bringing together a library to comprise all the most important books marking the chief advances in all the exact sciences.

Inasmuch as I learned a great deal in these conversations, I might claim to call myself one of Dr. Harvey Cushing's pupils. There was more in them than just a so-called "opening up of perspectives," a "stimulation of interest," a revelation of analogies and continuities in the whole secular course of scientific thought. If I may venture to say what remains most firmly impressed in my recollection of these memorable talks, I would sum them up with two characteristics: the great humility of the true scholar in the contemplation of the huge mass of the knowable but unknown; and, on the other hand, the ready exactness and certitude of his knowledge when he spoke with assurance about a subject he had fully investigated.

That, in my experience of many contacts with many types of men, has always seemed to me the touchstone or hallmark of true greatness of learning: to know when we truly know, to be aware when we merely surmise.

Here was one of the greatest surgeons of our epoch, the acknowledged master of all the intricacies of the convolutions of the human brain, who would question me on a problem of early printing with the modesty and eagerness of a fourth-form schoolboy. But when he spoke about Vesalius, about the relationship of the *Tabulae sex* to the *Fabrica*, when he discussed with me the mysterious appearance of the rudiments of the *China-Root Epistle* in a French Galen printed at Tours in 1545, then his tone was that of authority, he knew that he knew, he knew that he had himself examined all the evidence available, and that, whether his opinion was right or

wrong, there was nothing to be said in our present state of knowledge that he was not familiar with. A great teacher!

In 1932 I was again in Boston. I rang up Dr. Cushing. He asked me to show him my books at his office in the Peter Bent Brigham Hospital. So I took a suitcase full of them in a taxi, and was shown through a number of corridors into the Chief Surgeon's private office. There I unpacked what I had brought, and the little room was soon spread all over with incunabula, woodcut books, and manuscripts. While we were eagerly discussing what he *had* to have, what he need not have, and what he definitely would *not* have, there was a knock at the door. "Come in," said Dr. Cushing, and in came two young internes, two freshly baked surgeons who were making use of the much prized permission to drop in any time and have a chat with the great man. When they saw me and the room all cluttered up with books they wanted to run away. "Oh, come right in," said Dr. Cushing, "this is Mr. Goldschmidt of London, who is out to tempt me with all sorts of books. Just come and look at them. He is telling me all kinds of fanciful stories about them. Now, what do *you* know about Constantinus Africanus?"

Rarely have I seen two young medical students so frightened and embarrassed. But Dr. Cushing soon reassured them that this was not an examination, and between us we got them quite interested in those funny old books, and even asking questions about them. Indeed they helped me to make up Dr. Cushing's mind, and I believe that that 12th century manuscript of Constantinus Africanus, *Liber Viaticus, seu de morborum curatione*, was the first mediaeval manuscript he ever bought from me.

To my mind, and the way I look at books and book-collecting, mediaeval manuscripts, the books our forefathers used before the invention of printing, are the supreme objects deserving the respect and reverence of all of us who look upon books as the vehicles for the transmission of knowledge from generation to generation. No library attempting to illustrate the historic development of any branch of human knowledge can, in my estimation, stand in the first rank, if it fails to carry its story back beyond the date of Gutenberg's invention. A venerable manuscript, laboriously and carefully written on vellum, which shows us from what books the students of 600 years ago learned about the *Curatio morborum a capite usque ad pedes*, is, I should say, the best visual antidote to 19th century "progressive" conceit and the most convincing reminder that we see only a little farther into the mysteries of Nature than the 13th century did, because,

as Thierry of Chartres said, we are dwarfs standing on the shoulders of giants.

It would seem that my regard for early manuscripts found an echo in Dr. Cushing's heart, and, from 1932 onwards, he bought one or two fine manuscripts from me every year. In the printed *Short Title List of the Cushing Collection* the first section, called "Manuscripts," lists 60 items, most of which I would prefer to call either "autographs" or "papers," but it comprises 19 manuscripts written before 1500. Of these 19, nine have passed through my hands.

Not all of them are strictly "medical" in our sense of the word. Dr. Cushing knew well that the mediaeval physician had to base his diagnosis and his treatment on astrological data and that, though this procedure may seem to us most "unscientific," our present-day "scientific" processes of observation and of reasoning were largely developed in the school of astronomical observation and in the precise use of astronomical instruments. Therefore he was happy to acquire the splendid *Codex* (No. 9 of the Catalogue) containing 24 astronomical treatises of the 13th and 14th centuries, as well as a folding Star-Chart established in the 13th century Paris schools. This precious volume contains not only the treatises on the structure of the universe by the great English 13th century scholars Robert Grosseteste, Bishop of Lincoln, and John of Holywood (Sacrobosco), but also some instructions for the building and the use of the current astronomical instruments with which every mediaeval doctor had to be familiar. This great book, which still awaits its proper analysis and publication, was acquired by me from the convent of the Order of Preaching Friars in Vienna and sold to Dr. Cushing in 1936.

In those years Austria was my principal happy hunting ground, and the financial straits in which the ancient monasteries and abbeys there found themselves afforded extraordinary opportunities for buying from them books which had stood on their shelves for centuries. In 1936 I was able to conclude a deal with the famous old Benedictine abbey of Melk by which I came into possession of a number of their manuscripts. In January 1937 I arrived in New York and wrote to Dr. Cushing reporting myself back in the U.S.A. and hinting at a hoard of irresistible manuscripts. He answered that he had just undergone an operation and that I was to allow him a few weeks more to recover and that in February he would see "how much blood he could let me draw."

When I saw Dr. Cushing in February 1937 he was still confined to a bath-chair, but he was as gay and as keen as ever. Three of these Melk

manuscripts figure in the printed catalogue (Nos. 7, 8, and 33). One of them is a 15th century volume on paper containing a collection of 25 astronomical treatises, very similar in character to the Vienna *Dominican Codex* I mentioned, but 200 years later. Consequently the authors represented are of another period: instead of the 13th century Grosseteste, Sacrobosco and Gerard of Cremona, we have here the great astronomers and mathematicians of the 15th century Vienna school: John of Gmunden, George Peuerbach, Regiomontanus, the direct teachers of Copernicus. There is the treatise on the Squaring of the Circle by the great Cardinal Nicolaus of Cusa, one of only two manuscript copies known before its first appearance in print, 1565. There are a number of treatises on instruments: the astrolabe, the quadrant, the torquetum, and even one on the "Baculus Jacob," the Jacob's Staff, the primitive navigation instrument for taking the height of the stars by means of which Columbus sailed to America.

Another Melk manuscript now in the Cushing Collection is a 13th century medical textbook on vellum, probably from Padua University. It is most interesting as showing the standard mediaeval collection of texts, the so-called "*Articella*," in its incipient or embryonic stage. This handbook ultimately came to comprise seven, or even 13, treatises on medicine which the student had to master. But its nucleus always remained the *Microtegni*, the *Ars parva* of Galenus with the commentary of Haly ibn Ridwan, and some treatises by Hippocrates likewise translated into Latin, not from the Greek, but from the Arabic. In this early codex there are only the *Ars parva* and four Hippocratic books.

But in my fond recollection the finest of the three was a beautiful 13th century vellum codex of the *Compendium medicinae* of Gilbertus Anglicus, of Gilbert the Englishman, who accompanied Richard Coeur de Lion on his crusade and whom Chaucer still knew of and mentions in the *Canterbury Tales*. It is a beautiful book, handsomely written and in wonderful condition, and (a point that pleased me particularly about it) it had on the last page the bill of the "illuminator" charging for: "seven flowered initials, half red, half blue, 291 smaller flowered initials, and fifty times one hundred (5000) paragraph marks in red and blue."

I could go on gloating for a long time over the fine books I was fortunate enough to furnish to Dr. Cushing. But I think this should suffice. You will have gained the clear impression that, whatever may be the satisfaction to the collector, whatever may be the service to the cause of learning arising from the formation of such a library, it is the bookseller who gets the most fun out of such an enterprise. For every book he finds, for every

item he has the pleasure to handle, to describe, to recommend, and to sell, he gets a cheque which enables him to continue his search. And of the hunting of books, as *Ecclesiastes* should have said, there is no end.

THE FORMATION OF THE HARVEY CUSHING COLLECTION

E. WEIL*

THE United States is very fortunate to have such excellent medical libraries. They have been developed rapidly since the 1870's, and are headed by the Surgeon General's Library in Washington, or the Army Medical Library, as it is also called — the finest and largest medical library in the world. Its combined Index-Catalogue of authors and subjects, arranged in a single alphabet in dictionary order, describes about a million items. John Shaw Billings, a distinguished army surgeon in the Civil War, published in 1876 a *Specimen fasciculus:* since 1880 volume after volume of this well-known Index-Catalogue has been published. As the cost of each volume was modest, this excellent Catalogue, the only one with full collations and bibliographical details, has become the basis for everyone working on medical bibliography, and it is accessible in numerous libraries. A new feature of this Catalogue is the bio-bibliography of 16th century medical authors, the first fasciculus of which was added in 1941 to the sixth volume of the Fourth Series.

Although at least one of the other famous medical libraries, the Library of the College of Physicians, Philadelphia, was founded in the 18th century, the development of this library, as well as that of the Library of the New York Academy of Medicine, the library of the Medical and Chirurgical Faculty of Maryland, and the Boston Medical Library with Oliver Wendell Holmes as its first president, did not take place until about 1880 and later. They were followed by the libraries of the great medical schools, Harvard and Johns Hopkins. The Osler Library at Montreal which so obviously invites comparison with the Cushing Collection was given to McGill University after the last war, but the Harvey Cushing Library now at Yale is the finest gift of books by a medical man since William Hunter left his library to Glasgow University. With the creation of the new Yale

* Antiquarian of London.

Medical Library which was dedicated in June 1941, Yale may well be ranged with the older libraries I have just named.

Harvey Cushing died of angina pectoris on 7 October 1939 at the age of 70. He had left the Harvard Chair of Surgery at the age of 63 to return to Yale, his Alma Mater, first as Professor of Neurology, then as Professor of Medical History. Cushing had met Osler and Welch at Johns Hopkins Hopsital, where he spent 15 years of his life. Professor Jefferson in his warm appreciation of Dr. Cushing in the *Manchester Medical School Gazette* has so well characterized the relations between Cushing and Osler — which went far to arouse the collector's instincts in Cushing — that I beg leave to quote him:

> The friendship which sprang up between the two proved to be a vital factor in Cushing's life, and probably not less in Osler's. It oversimplifies the development of Cushing as the lover of books to say it was due to Osler. Cushing's whole life shows him to have been basically a collector. Men are born that way or not. Cushing collected and classified cases and varieties of tumours, labelling them, docketing them, filling gaps in much the same way that he collected Vesalius, who fascinated him as Browne did Osler. The admiration and affection flowered later in the great Life of Osler. The great common bond between them was in books, as Osler's letters to Cushing witness, when the former was travelling in Europe. They shared ideals in the meaning and uses of the medical life in its highest intellectual plane, as well as at a humanitarian level, as the similarity of their writings on these subjects shows. The occasional papers of both men show the same temper, reveal the same long hours of patient reading amongst the older masters, the same drive towards a realisable ideal. That Osler was the more scholarly and the more studious reader of the classics of literature and of medicine cannot be denied, but the modern range of the younger was the greater.

When Sir William Osler died, shortly after the last war, his important contribution to medical history, the *Incunabula Medica*, was not quite ready for the press. A. W. Pollard and J. V. Scholderer saw to its publication in the same way that Dr. John F. Fulton saw to the publication of Dr. Cushing's book on Vesalius, which was published simultaneously with the Short-Title Catalogue of the Cushing Collection, almost exactly a year ago. Sir William Osler bequeathed to the Medical Faculty of McGill University, Montreal, his collection of about 8000 volumes illustrating the history of medicine and science, and I am sure the fine catalogue, the *Bibliotheca Osleriana*, which was published in 1929, is familiar to you. At the time of Osler's death the outline of this catalogue had been sketched and the form and contents of the *Bibliotheca Prima* had been decided. You certainly remember that this interesting catalogue, full of the fascinating

notes by Osler on the provenance of his books and on other points, is divided into two parts: the *Bibliotheca Prima* and the *Bibliotheca Secunda.* Osler had presented to the members of the Classical Association in May 1919 his idea of the *Bibliotheca Prima:* "To have in a comparatively small number of works the essential literature grouped about the men of the first rank, arranged in chronological order." I feel sure that the idea was always underlying the collecting mind of Dr. Cushing. This idea is still alive; it has been modified and has again come to the fore in the most recent deliberations on the problems facing such large collections of books as those composed of current texts and historical material as, for example, those in the Army Medical Library. This Library has evacuated its 30,000 volumes of historical material to Cleveland; the incunabula are kept as a special collection and all the other books printed before 1800 are arranged alphabetically by centuries without worrying about signatures, so that one can find anything in the entire collection with no delay. Apparently this emergency system has worked so well that a Survey Committee of the best known librarians, which was appointed in 1943, has come to the conclusion to leave it at that, and to divide the material of such large, composite collections into the following categories:

1) *The live collection* of current texts printed within the past 25 years classified more or less minutely in accordance with a modern system of classification, for example, the Library of Congress system of notation.

2) *Older material*: All volumes between 1800 and, say, 1920, would be classified in less detail than the live collection.

3) *Rare books*: In this section would be included all volumes printed before 1800 and such additional rarities up to the present as seem to deserve such classification, *i.e.*, Beaumont's *Experiments on the gastric juice*, 1833, as well as Roentgen's pamphlet of 1895 on the X-rays, or Florey's paper on the therapeutic action of penicillin.

I now come to the Cushing Collection proper and in the first instance apologize for my temerity in venturing to speak about this library without having seen it. As I mentioned, the library was dedicated during the war, and only a very few persons in this country have yet seen it. But for 20 years I watched its formation eagerly and during these years I corresponded with Dr. Cushing and saw him when he was in Europe. In a small way I contributed to the formation of the collection. In the early 1920's when I started to be a bookseller Mr. E. P. Goldschmidt used to visit me several times yearly at Munich, and he always found some early surgical or anatomical books — especially books by Vesalius or other books with "bones" — which he took with him to London. These regular inquiries

not only suggested an unknown collector of such books; they also formed the beginning of a friendship which opened for me a niche in London when the time came for me to leave Germany in 1933 and provided me with ten years of most interesting collaboration with a great scholar and bibliographer.

My chief client for early medical books was then the late Dr. Crummer of Omaha who left his fine collection to the University of Michigan where it is shelved in a separate room around the urn which contains his ashes. The only book which was detached from the collection was the first edition of Harvey's *De motu cordis*, 1628, a copy on large paper (with the errata leaf which is so often missing) and nobly bound in vellum with the arms of a 17th century abbot of Lambach in Austria. This copy I found for him in 1926. Dr. Crummer used to come to Munich every year in the late autumn, and I owe to him not only much of my knowledge of early medical books but also of that American invention, the cocktail. Probably he gave my address to Dr. Cushing and one of the first books I sold to Dr. Cushing was the so-called Fontana-Vesalius, a 17th century Amsterdam reprint of Gemini's *Anatomia*. Osler aroused Cushing's interest in Vesalius. One has only to read Osler's enthusiastic notes in the *Bibliotheca Osleriana* (p. 58) where he also demands, "A good life of Vesalius in English should be written." The *Fabrica* of 1543 was one of the earliest books Cushing owned and he liked to quote a postcard from Osler addressed to him from Guernsey in July 1903 in which he exclaims: "I have bagged two 1543 *Fabricas!* 'Tis not a work to be left on the shelves of a bookseller." But there were other reasons why Cushing chose to collect Vesalius and to write such an interesting and at the same time intricate work as the Vesalius Bio-Bibliography. Let me quote from Dr. Fulton's preface: "In the impetuous Vesalius, Harvey Cushing saw a vigorous and indefatigable character with a stormy temperament similar to his own — a man with artistic leanings who gave unremitting attention to detail — all of which aroused Cushing's admiration and caused him to follow Vesalius with instinctive determination and persistence. During the forty years from 1899 until his death Cushing pursued the trail; he collected everything conceivable relating to him, including the writings of a host of less gifted followers who copied the Vesalian text and figures. . . . " With many of my colleagues I helped for years to fill in the gaps of the Vesalius collection. In a collectanea volume from a monastery library I found what is probably the only copy of the China-Root Epistle in German printed at Würzburg in 1548. I found a number of the *Consilia* (i.e., written con-

sultations) of Vesalius which are hidden away in obscure collections of consultations, and other Vesaliana.

Another important find was the Anatomical Tables, the so-called *Tabulae sex* of 1539, only one other copy of which has turned up in my generation. Chapter II of the Vesalius Bio-Bibliography is devoted to the *Tabulae sex*. In December 1537, just before his 23rd birthday, Vesalius received his appointment from the Venetian Senate to the chair of anatomy at Padua. He was then, together with his fellow countryman Jan van Calcar, a very gifted draftsman, working on six very large anatomical sheets of which three were skeletal plates. They show the imprint of a Venetian printer, Bernadinus Vitalis, and are dated 1 April 1538. No doubt they were intended for teaching purposes, to be placed on the walls of a lecture room. This seems to be the reason for their rarity. Only three copies have survived. They were at once copied — extremely well copied, in fact — by an Augsburg woodcutter and printer-publisher Jobst de Necker, dated 1 June 1539. A set of these Augsburg tables turned up at Munich in 1926. They came from a small bookdealer's shop at the back of the University building, a shop frequented by artists, the bookseller's brother being himself a well-known book-illustrator. The *Tabulae* were being used in 1926 by an artist as anatomical models. There were five of the tables; I could never trace the sixth and I had a facsimile made after the copy in the Bavarian State Library, one of the two other copies extant. When, on the occasion of the Neurological Congress at Berne in 1931, Dr. Cushing came to Munich and I had the unforgettable pleasure of spending a long day with him, the first thing we did was to look at the Bavarian State Library copy of the de Necker *Tabulae*.

In 1934, not long after Dr. Cushing's arrival in New Haven and after he had interested two of his close friends, Dr. John F. Fulton and the late Dr. Arnold C. Klebs, in the idea of combining their collections, the inception of a representative historical collection took place. Let me quote from a letter of 4 October 1934 to Dr. Klebs:

> I woke up in the middle of the night with the thought — why not a Klebs-Fulton-Cushing Collection so that the three could go down to bibliographic posterity hand in hand. Just imagine some young fellow long hence stumbling on our diaries and papers and correspondence about books. I envy him to think what fun he would have, for I think in a certain way our three collections have a more personal and intimate provenance than has William Osler's library.
>
> All this has come up to me for I am redrawing my will and I plan to leave enough to start a professorship of the history of medicine. It's just possible the

University might switch my Sterling Professorship to that purpose and then the income of my bequest would be used for book purchases.

I don't know what your own plans may be if you have any. I know that you once thought of establishing at Les Terrasses a foundation for medico-historical studies. This you may still intend to do but if not and if this other idea has any interest for you do let me know.

Soon other friends of Dr. Cushing — Dr. Edward C. Streeter, Dr. Clements C. Fry, and Dr. George M. Smith — were interested in the scheme and they have already made notable contributions to the Library. I should like to quote from a pamphlet describing the Library as it was on its foundation in 1941:

The Cushing Collection. By common consent Dr. Cushing's gift represents one of the greatest collections of the classics in the fields of surgery and anatomy ever brought together by a private person. The groundwork of this great aggregation is formed of printed documents of the earliest period of medical writing, including some 150 of the outstanding works in medicine and science of the incunabula period. Dr. Cushing was also deeply interested in English medical documents of the sixteenth century, and assembled an extensive collection of Tudor and Elizabethan medical writings, probably second only to the collections of the Huntington Library and the British Museum. In addition, his large assemblage of the works of the sixteenth-century anatomist, Andreas Vesalius, and of the works of his followers and plagiarists, is unique, since it is the foremost collection of Vesaliana ever brought together.

There are also extensive individual collections of Harvey, Culpeper, Garth, and Mead, all of whom are somewhat outside strictly anatomical and surgical fields. Finally, there is a generous scattering of fundamental publications in astronomy, physics, chemistry, geology, and in botany, embryology, and various other divisions of the biological sciences. The collection embraces in all some 15,000 volumes.

The Klebs Collection. A second collection which may be destined for the Library is that of Dr. Arnold Klebs of Nyon, Switzerland, who through his son-in-law, George Stewart, Yale 1915, and through his life-long friendship with Dr. Cushing, has strong ties with the School of Medicine. This library has three outstanding components. In the first place, Dr. Klebs, long an authority on tuberculosis, has collected the more important contributions in the history of that disease. His second interest has been the history of variolation and smallpox, in which a unique aggregation has been brought together. Finally, and perhaps of greater significance, are the many specimens of medical and scientific incunabula and photostats of one page or another of almost every existing medical and scientific incunable.

The incunabula of medicine and science represent Dr. Klebs' special field, and he has also accumulated a large store of "apparatus" for the study of the fifteenth century books: i.e., books *about* fifteenth century books. Dr. Klebs is

now actively engaged in preparing a definitive, richly annotated catalogue, as an introduction to which he has recently issued a short-title hand list of this vast literature.

Dr. Klebs died on 6 March 1943 at Nyon. The 1944 *Report of the Historical Library* tells me that the Arnold C. Klebs Library has already been packed in 110 cases ready to be shipped to Yale after the war. Seven cases are filled with incunabula; all in all there are about 20,000 volumes, including Dr. Klebs' unique collection of separata dealing with the History of Medicine and Science bound into about 5000 volumes.

In 1938 Dr. Klebs published a *Short-Title List of Incunabula Scientifica et Medica*, listing more than 1000 titles, without counting the different editions; there are more than 3000 editions in all. This Short-Title List should have been followed by a descriptive catalogue on which Dr. Klebs worked for many years. As I see from the inventory of the American Consul at Geneva, this material alone fills six cases to which three cases of scientific correspondence have to be added. We may well expect one day a full-fledged bibliography of the scientific literature of the 15th century derived from this material. Dr. Klebs' Short-Title List, controversial as a number of points in it certainly are, has already become a valuable tool in this field.

The Fulton Collection. A third collection, that of Dr. John F. Fulton, Sterling Professor of Physiology in the Yale University School of Medicine, is composed of works in the field of physiology and experimental medicine. Neurophysiology and neurology are emphasized — with an especially large representation of seventeenth-century items. There are several authors whose works are particularly well represented, such as Robert Boyle, Sir Thomas Browne, Sir Kenelm Digby, Joseph Priestley, Thomas Willis, etc. Dr. Fulton has also been interested in "apparatus" and has much source material bearing upon many phases of medical history and biography. He contemplates issuing at some time in the future a *Bibliographia physiologica*, and his physiological collection will form the background of this special bibliography.

Dr. Edward C. Streeter of Stonington presented to the Library his unusual collection of early pharmaceutical jars and a unique collection of weights and measures drawn from the earliest civilizations of Egypt and Babylon down to the late Renaissance. These collections have since been greatly enlarged by further gifts of Dr. Streeter and source books on the history of pharmacy and the history of weights and measures.

The Library of the Yale School of Medicine was founded in 1917 and in 1931 it had between 6000 and 7000 volumes which were housed in the School. Following the decision of Dr. Cushing and his friends to leave

their important collections to Yale, the Yale Corporation in 1936 authorized Grosvenor Atterbury, one of the foremost American architects, to draw up plans for a new medical library, and in June 1939 funds were made available for the building. Dr. Cushing had believed that a medical library should be entered from the first floor, "That it should be in the center of gravity of the school; and, if possible, the historical division should be as accessible and attractive as the division housing modern medical texts and journals." Dr. Cushing's dreams have come true. This very fine new library is 'Y' shaped, with two wings: the working library takes one wing, the historical library the other wing, both extending over two floors and joined by a noble rotunda, dedicated to Harvey Cushing by his classmates of Yale '91 — a dignified exhibition room. At the end of the historical reading room hangs a large portrait of Vesalius attributed to Calcar who probably designed the woodcuts in the *Fabrica*. At the opposite end of the library are two portraits, one of Joseph Priestley by Artaud and the other of Helmholtz by Hans Schadow. The two bronze statuettes of Vesalius and Paré by a Belgian artist, cast about a hundred years ago, probably for the Vesalius Tercentenary of 1843, which I found recently, will also find a place in this room.

I think we must respect the Americans for their capacity for doing quickly that which has to be done. Scarcely two years after the dedication of the new Yale Medical Library their first catalogue was ready. It is a short-title catalogue, a volume of about 200 pages. For an inveterate bookish man the reading of a catalogue is similar to the pleasure a musician derives from reading a score, but a short-title list must indeed be interesting if it is to arouse enthusiasm. The Cushing Collection list falls in this category. It is very well planned. To avoid long serial numbers the Americans have for several years adopted the system of numbering afresh the items under each letter of the alphabet. Each number is preceded by this letter. The quotations are therefore very short: one letter and not more than three figures. After the author's name in this list, the dates of birth and death are quoted. The exact title, printing date, and size of the books are usually followed by an abbreviated reference to the best authority which describes the item in question with a collation — for example, the Surgeon General's Catalogue, the British Museum Catalogue, or a special bibliography. Hardly any title is longer than two lines. I found that this catalogue is very easy to use, especially because of the numerous cross references. One of the usual stumbling blocks in listing early printed books is the names of the authors; this has been surmounted by using vernacular

forms for authors and printers, supplemented by cross references. Finally, as in the case of all such catalogues, I would subscribe to a quotation which Miss Margaret Brinton, the chief cataloguer, gives from the *Medicina statica* of Sanctorius: "What literal faults there may be, the intelligent reader will easily find, and correct."

I think I have not yet done justice to the richness of the really rare and outstanding volumes which Dr. Cushing was able to bring together in this collection. Although only 60 manuscripts are listed, nearly every one is of special interest. After the last war the Austrian monastery libraries were largely broken up, and about ten of the Cushing manuscripts came from such abbey libraries as Admont and Melk. A few of the manuscripts, as well as some of the incunabula, were formerly the property of well-known 15th century physicians such as Ulrich Ellenbog on whose library R. G. Proctor wrote one of his fine essays, and Hieronymus Muenzer of Feldkirch, a biography of whom we owe to E. P. Goldschmidt. One volume of collectanea of early scientific manuscripts is especially attractive. It contains, for example, the famous 13th century treatise of Peregrinus on the magnet, in a hand of the 15th century, bound together with the first printed edition of Euclid (Venice 1482) and two books from Regiomontanus' own press at Nuremberg. This volume came from the library of a John Serlinger, the chronicler of the bishops of Salzburg. I well remember the fine morning when I was looking for Serlinger's tombstone in St. Peter's churchyard in Salzburg. He died in 1511 and was buried behind the apse of the Church of St. Peter, not very far from the tomb of Paracelsus, which I used to visit from time to time when I was at Salzburg.

There are approximately 170 medical and scientific incunabula in the collection, and some are remarkable first editions: the *De medicina* of Celsus of 1478, Brunschwig's well illustrated *Chirurgia* of 1497, the first Galen *Opera* of 1490 in two folio volumes, which we could admire a short time ago in this room [Royal Society of Medicine] when the Wellcome Museum showed some of its treasures, Guy de Chauliac's *Chirurgia* of 1498, the first Herbarius printed by Schoeffer in 1484, the large folio edition of the first Ketham, 1491, certainly the finest early medical book, the *De morbo gallico* of Leonicenus, printed by Aldus in 1497 (the copy of Hartmann Schedel, the author of the famous Nuremberg Chronicle and an M.D. himself), the *Regimen* of Maimonides, Florence, 1481. Another noteworthy book is the *Epitoma in Almagestum Ptolemaei* of Regiomontanus, Venice, 1496. This copy previously belonged to Hevelius, the great Danzig astronomer, and contains his autograph signa-

ture and notes by him. Hevelius' library, his manuscripts and his instruments, were all destroyed by fire in 1676. It is now believed that Hevelius laid the fire himself to rouse the waning interest of the scientific world in his works. Anyhow, I have seen only one or two other books which were in his library before. I conclude the list of incunabula with that great book, the *Regimen sanitatis* of Salerno, the first edition of which was printed about 1480 at a small press at Cologne and of which we know of only six other copies in the whole world; there are two copies of it in the collection. It had long been recognized that Dr. Cushing had his favorites. Robert Boyle is represented by 60 items, Culpeper by about a hundred. Harvey, Servetus, and the literature of the circulation are well represented, as are Fracastor, Samuel Garth, and Jenner; the collection also contains all the early editions of Beaumont's work on the gastric juice, the Plattsburgh 1833 edition and the Boston, Edinburgh, and Burlington reprints, together with the German translation of 1834.

All the original editions of John Caius are represented, as is Canano's well illustrated treatise on the muscles of the upper extremities, printed at Ferrara, about 1541. It is probable that Vesalius met Canano at Ferrara and showed him some of his woodcuts for the *Fabrica*. "Canano must have realized that here was a competitor far beyond his reach," concludes Dr. Cushing; this first treatise was not followed with its continuation of the muscles of the other parts. In 1925 Dr. Cushing and Dr. Streeter published a facsimile edition of this extremely rare Ferrara book. Other predecessors of Vesalius are well represented, as for instance all the original editions of Berengario da Carpi, well printed and beautifully illustrated anatomical works published about 1520 at Bologna. Besides the first edition of Galen's works which I have mentioned, there is a fine and long set of early 16th century editions of the single treatises of Galen. Dr. Cushing was especially enamoured of the charming translations by Jean Canappe and never failed to ask for them. Canappe translated Galen, and also a part of the *Tabulae* of Vesalius which was published at Lyons in 1542 by Estienne Dolet, who died a martyr. Besides being a printer, Dolet was also a poet and, of course, the poems are to be found in the collection, too. I should also say something about the Paré items. Paré's original small octavo editions in French may rightly be numbered among the rarest of the 16th century medical books. There are more than a dozen of them in the library and Janet Doe who wrote the Paré bibliography acknowledges that the nucleus of her descriptions is based on the "splendid Parésian Library" of Dr. Cushing.

About 1930 Dr. Cushing started to add the classics of science to his

medical books. We find not only the first edition of the revolutionary work of Copernicus printed in 1543, the same year in which the *Fabrica* of Vesalius was published, but the much rarer *Narratio prima*, a small pamphlet of 36 pages in which his fervent disciple Rheticus gave the news to the world three years before Copernicus' well documented folio was published. This Danzig 1540 edition, the first announcement of the Copernican Theory, was believed to be 'un livre introuvable.' I brought a copy of it from Munich — and a few months later Mr. Goldschmidt, when he returned from the sale of the books of Count Dietrichstein at Luzerne, brought with him another. But I have heard of no other copy, before or since. In addition to Copernicus, Tycho Brahe, Galilei, Kepler, Giordano Bruno, Cardanus are well represented with their most important first editions, all of them desirable and rare books. Of the later centuries I mention only a few outstanding books, as, for example, the first edition of Linnaeus' *Systema naturae*, Leyden, 1735, in folio. There are only about a dozen copies known of this classic which was printed at the expense of a few Dutch admirers of the young genius. Two copies of it were sent at once to Sir Hans Sloane, one for himself and the other for the Royal Society's library, to direct attention to this great work. Both copies have survived with the letter which was sent with them. One would not think that such a precious volume would be sold for a hundred francs at a small bouquinist's in Paris. I was not lucky enough to find it there. I saw it first in the backroom of a tiny bookshop here; its owner knew very well the importance and value of it. He did not even want to sell it, which was a very uncommon occurrence in those days. Other well-known but very rare books are the four-page pamphlet in Latin which Oersted sent out from Copenhagen early in 1820 to the scientists of Europe; Mendel's Law, first published in 1866 in the transactions of a Czech natural history society; and Hutton's *Theory of the earth*, 1795. For this work Dr. Cushing gave a nearly unlimited bid after we had drawn his attention to a copy at Sotheby's; it then fetched the unheard-of price of 56 pounds. Quaritch's were good enough to consult their old slips, and found that many, many years before they had sold a copy of these two volumes for 30 shillings. A year later, in 1937, another copy was offered at Sotheby's which fetched 96 pounds. No other copy has been offered since.

Dr. Cushing was also ready to go in for the important scientific work of our own days. For years I tried to bring together as many as possible of the 200-odd papers of Einstein. This special collection is now one of the

most complete in existence and in 1937 Dr. Cushing kindly accepted the dedication of a short-title list which was printed in a hundred copies.

I do not think Dr. Cushing had that proverbial collector's luck that, for example, Dr. Fulton certainly has. I remember the day when Thomas Browne's sale catalogue, of which only very few copies are known, turned up at Hodgson's. Dr. Fulton arrived hardly an hour before the sale and we could get it for him. And I have been told how Dr. Fulton during the war arrived on the very day when a scientist's library changed hands so that he could pick out the oustanding volume of this collection: Rudolph Camerarius' *Epistola de sexu plantarum*, in which the first experimental proof is given that viable seeds cannot be formed without the cooperation of the pollen. The importance of this treatise, which was printed in 1694 at the small university town of Tübingen, is matched only by its rarity. I have never seen a copy of it. Perhaps I, too, once found something which pleased Dr. Cushing; I do not remember what it was, but I remember his saying he would in exchange, if I wanted it, take out my brain, dust it, and replace it again.

In February 1936 I was in Paris to attend the sale of books coming from the libraries of Antoine and Bernard de Jussieu and some younger members of that famous family of botanists. The sale was not very exciting; at the end about 30 lots were sold, all in baskets, each for a hundred francs. These lots were not described in the catalogue, nor were they on view before the sale. I bought one or two of these lots and back in London I saw that they contained the very interesting scientific apparatus of Hippolyte Fizeau (1819–1896), who was a relation of the Jussieus. Fizeau determined the speed of the propagation of light and was one of the great French scientists of the middle of the 19th century. I went straight back to Paris and hunted among the bouquinists for the contents of these baskets to form a collection of them; they will now be found in the Cushing Catalogue under "Fizeau Papers."

To conclude my enumeration I mention the Galvani-Aldini special collection on animal electricity. The combined books of Dr. Cushing and Dr. Fulton on the subject form as complete a collection as possible. Both collectors became so interested in the problem which ultimately led to the discovery of the electric cell by Volta that we owe to their combined pens a remarkable essay on the complex situation, together with a sterling bibliography. The four *Reports of the Historical Library* so far published prove that this tradition — to make the old masters speak again and to

create a center of research around the old books — has been well carried on. The range of research, exhibitions, and of historical studies is very wide. Since 1942 Dr. Arturo Castiglioni, the distinguished historian of medicine, has taken a prominent part in the arrangement of the life of the school and has conducted regular series of lectures there. Of exhibitions I mention those on medical Americana, on anatomical illustration, on herbals, on Renaissance medicine, on aviation medicine, on poetry and travels by physicians. It would be beyond the scope of this paper to enumerate all the lectures and other activities. The index of the printed papers on bibliography and the history of medicine which have emanated from the Historical Library had very nearly 50 titles at the end of the fourth year of the Library's existence. In conclusion, and to show the vigorous spirit with which Dr. Cushing's friends endeavor to keep alive the great endowment which he made to Yale, let me quote again from the *Report* 1944:

> The Library has inaugurated a more energetic program with regard to exhibits in the belief that their educational value is great, especially if there is a more rapid change of displays than was true during the first two years. At the time of the fall of Sicily and our entry into Salerno, a large exhibit was arranged on "Contributions of Italy to Medicine and Science." This was followed by the Vesalian exhibit, and after that a series of educational displays particularly for young medical officers: the first on head injuries, the second on the Red Cross and the neutrality of the war-time medical services; then penicillin, and finally the present exhibit on plastic surgery. This is to be followed by war-time orthopedics and later by an exhibit on peripheral nerve surgery, the foremost neurosurgical problem of the present war.

HARVEY CUSHING AND HIS BOOKS

GEOFFREY JEFFERSON*

ONE needs to go no further than Harvey Cushing's own writings to learn how he came to collect books. He has told here and there how his Vesalius collection began; we know how finely the *Bio-bibliography* ended it. But of his library at large and how it grew, much can be deduced from these passages taken from "A Doctor and his books," an example of Cushing's wit at its best:

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Vassaeus's book I did not particularly desire, as it is in bad Latin which I have small patience and less ability to read. It stood on my shelves for years alongside Lipinska's *Histoire des Femmes Médecins* — a bobbed-haired production of modern times. The inevitable happened. Ere long a small and inoffensive volume was the consequence of the liaison — a mewling octavo in pale calf — the *Anatomy* of Loys Vassaeus in French. Aware of my responsibility, I segregated it with its Mother on a back upper shelf till it could be weaned. And now comes the waste of time.

A friend has been staying with me, whose metabolism and pulse-rate in the presence of other people's books run high. He grows exophthalmic with hyperbiblioism. So, while you endeavour to concentrate upon your proper tasks, he exclaims, "Where did you get this Dolet imprint?" holding up a vaguely remembered calf of a book in his hand. "Oh, I don't remember; someone may have left it at the door, but I always thought it came into being on the bottom shelf of that case in the corner." "Are you aware," says he, ignoring my trivialities, "that Christie knew of only one other copy?" You begin to take interest. "Perhaps someone gave it to me for Christmas. But what about Dolet? Let me see the book; it's only just grown up."

And there it was sure enough — *A Lyon. Chês Estienne Dolet. 1542. Auec priuiliege pour dix ans.* And, what is more, with two other Dolet imprints, *Des Tumeurs* and Galen's *De la Raison de curer par Evacuation de Sang*, newly translated from the Latin into French — a veritable triplet.

This is enough; you are lost. The attack is on. Influenza in its abruptness is nothing to it, and days elapse before you are fit to resume your legitimate job. Your fever leads you first to Richard Copley Christie's life of the unfortunate Étienne Dolet, the young Renaissance scholar and printer, contemporary and one-time friend of such as Erasmus and Rabelais, who lived in Lyons when Lyons was a place to live in, and who in the Place Maubert in Paris for his religious opinions, when only thirty-seven, suffered the fate of Servetus and was burned with his books. He had printed possibly eighty pamphlets, which are among the *rares rarissimes* of the collector. In one of them, when translating Plato's Dialogues and quoting Socrates on the immortality of the soul, he had added three words which left the meaning dubious; for this he went to the stake.

And this leaves you anxious to know about Christie, whose chapters on Rabelais, on Padua, on the trial and the scene at the Place Maubert, give one a vivid picture of the time when printers issued books at the risk of their lives, — Christie who worked eight years on his Dolet and hints in his preface at a long and continuing illness, — but after all there is this address to write and much time has been lost. Beware the book.

But books nonetheless came until there were so many that he said of them that they were "there on my shelves, if not in my head. . . . " Did Dr. Cushing read his books? There is amongst bibliophiles a gentleman's agreement not to ask that question. Of course he did not read all of them, none of us do, or can, or ever have done so. Marcus Antoninus as long ago

as A.D. 121 advised his readers to cherish no illusions of that kind. We read selectively, we pursue what we require, we read what attracts us and often with a queer sort of taxis that leads us to what we want. That is our chief reading but, besides, we can often be fascinated by the form, shape, color, and feel of books in which we don't even read 50 lines. A. J. Nock is right when he holds that a generous education, if it be understood that we mean one of a tertiary sort, can be gained from the backs of books. Dr. Johnson refused to believe that anybody had ever read a book right through, and Oliver Wendell Holmes was of much that opinion. He had had, he said, "much greater profit from the books that I read *in* than from books that I read *through*."

The most accurate method of knowing about a library is that, as it were, of accountancy where the provenance of each volume is known, its date of purchase, and (an unending source of enjoyment) the amount paid for it. That is the surest way, but the more illuminating is to enquire why the books were bought. As an unrepentant book buyer it would, I know well, tax my memory, my powers of invention maybe, had I to give reasons for all my purchases. I have no doubt that anyone looking over another's books must frequently exclaim: "Good gracious, what on earth did he buy that for! I had no idea he had any interest either in that subject or that author." And maybe there had been none; the book just made its way into the company. But this is a universal frailty to which all book lovers are subject. How often do we resolve that we shall limit our purchases to this subject or that, to such and such a period, or to a few writers in whom we are particularly interested. And how vainly!

A more interesting study is to see how much use a collector who is a a writer makes of his books, to discover who were his favorites, and especially what trends of thought, what climates of opinion, made particular appeal. I have made a survey of a number of Harvey Cushing's papers in the collected addresses that form the *Consecratio Medici* (1928) and *The Medical Career* (1940). The number of writers quoted is very large: in "Realignments in Greater Medicine" there are 64; in "From Tallow Dip to Television" 31 different people are mentioned; in another, of 23 allusions 19 are to doctors.

An interesting fact emerges that the great majority of the names quoted were of doctors, savants, or scientists; a few, a very few, were of purely literary men. There is, to be sure, nothing deleterious in that; it shows the strict way in which our author confined himself to the principal aim of his life — the furtherance to the utmost of his powers of such scientific direc-

tion as he could give. Cushing was scientist, scholar, and collector. The dominant note is the plea for the wider view, the widest possible view, of medicine and the dangers of narrow specialization. Coming as they did from a super-specialist, these warnings carry extra weight and they must have been born of a conviction that it was right to do as he had done and turn the full fury of his talents, of his genius, if you will, to the narrower end. But he recognized his particular duty to give back to general medicine, to general culture, what he could, and on no account allow himself to be cut off from the parent body. I remember how feelingly he quoted Lanfranc — "No one can be a good physician who has no idea of surgical operations, and a surgeon is nothing if ignorant of medicine." Thus it is that Cushing speaks most lovingly not of his forbears and precursors in neurology but of the great general pioneers, especially those in America like Nathan Smith and Daniel Drake who founded medical education with wisdom and devotion — great doctors, great general practitioners of surgery and of medicine. To the end that this homage might be paid, many volumes found their way onto his shelves, many old journals were ransacked. This knowledge of the medical history of New England and the Western Reserve, the two spheres of his own doctor ancestry, made the hard core of Harvey Cushing's historical knowledge. It became part of him, fused with the special knowledge that he himself so brilliantly acquired, and went out again in his many addresses. He was, as everyone knows, in great demand as a speaker at graduation ceremonies, at commemorations, and the like.

Harvey Cushing's interest in letters other than medical, in the *litterae humaniores*, was rather that of an appreciative man who had not yet got around to them in the thorough way that he felt they needed. Nor, we may well conjecture, would he ever have done so. One of the chief advantages of living a long time is the opportunity that it brings of filling gaps in knowledge. A good example in our own time is Sir Harold Stiles who retired from the chair of surgery at Edinburgh at 62 to devote the next 20 years of his life to what he had missed — geology, archeology, architecture, ornithology, botany and now, conchology. The advantages are amply demonstrated in the Pollock-Holmes letters where are shown the pleasures of the eighth and ninth decades in catching up on the reading of things that one has always meant to master. It seems that Cushing would have gone not into general literature but into the history of science, for certainly he had made more than a beginning in collecting the source books of chemistry and physics. For poetry he had not, I think, a great ear. Nor

need that surprise us in one who most certainly had the artist's eye, most unusual skill as a draughtsman, and no little as a colorist. Few artists are polyvalent for arts other than their own. A striking contrast can be drawn between Harvey Cushing and William Osler in this way; it is one worth making because it helps, I believe, our appreciation of both men's qualities, great but different.

Osler's writings are bespattered as much as Cushing's with the names of famous men, but by and large they are mainly classical names in the temple of literature. Thus of the 28 quotations, some long, that form the mottoes of *Aequanimitas*, only four are from medical men. They have been picked from the Bible, Shakespeare, Milton, Plato, Shelley, and of course, Sir Thomas Browne, whom no one has ever claimed as much of a scientist.

It was said of Osler after his address to the Classical Association that in him the scientist and the literary humanist were more perfectly blended than in anybody else. And if we mean by that the doctor with a passion for noble thoughts, nobly expressed, a passion for those who sought after truth (even though we know it to be an abstraction), a passion for old paper, old bindings, old sources, old letters, and old manuscripts, then William Osler was the supreme example, the most vocal and most gracious of them all. We can say of him what Dr. Cheever said of O. W. Holmes "He cuddled old books and hugged them close." Holmes himself confessed that he loved "old stories from black-letter volumes and yellow manuscripts, and new projects out of hot brains not yet imbedded in the snows of age." Holmes, Osler, and Cushing were alike in their love of the old and of the "hot aortic flood of throbbing human life." Osler's and Cushing's greater medical abilities and energies brought them more opportunity and wider-spread rewards. Both knew the value of history, no less for science than for letters. "Those who cannot remember the past," Santayana reminds us, "are condemned to repeat it."

We can estimate again the different literary tastes of Osler and Cushing, if we consider the two men to whose books each in his own way was most devoted, Sir Thomas Browne and Vesalius. It is impossible for anyone with a taste and an ear for language not to fall under the spell of Browne, not to be fascinated by the quantum of his Latinized English, not to be deeply impressed by the power of his thought, the virility of his prose, by the ingenuity of his propositions, by the sublety of his evasions. Now, it is unlikely that anyone will ever read Vesalius with the same pleasure. Although there is enthralling interest in what he has to say, little fascination is to be found in the manner of it; but it is not for that that one reads

Vesalius. Far be it from me to derogate Cushing in saying this, but to point a difference in purpose. Cushing may well have felt as a personal statement what he quotes from Gabriel Naudé: "I have addressed myself to the Muses without being too much enamoured of them." Cushing liked best the history of facts

> Pure crude facts [as Browning said]
> Secreted from man's life when hearts beat hard
> And brains, high blooded, ticked two centuries since.

One sees this in his passion for the correct attribution of important technical instruments and discoveries to their begetters — thus it is always Leeuwenhoek's microscope, Floyer's pulse watch, Abbé's lenses, Wunderlich's thermometer, Laennec's stethoscope, Perkin's aniline dyes, Helmholtz's opthalmoscope, and so forth. These reminiscences of inventions can be very important to young people, whilst even the old will profit by the reminder. I hope that none will deny that facts can be handled in an artistic way and still be facts, for there is no denying that Cushing was a great artist. This is plain in a graphic sense, too. That he was as skilful with his pencil as with his pen, the note-book recently reproduced so perfectly by John Fulton shows (*A Visit to Le Puy-en-Velay*).

It would be against the weight of the evidence, not all of which has yet been presented, if the foregoing were found to amount to a judgment for Osler against Harvey Cushing. No two men have identical tastes, no two will form identical libraries. Certain sections of Cushing's library were undoubtedly added to fill vacancies in the shelves of the great library which was to be the ultimate destination of his own. As Underwood has said, the collection is particularly rich in old anatomical and surgical texts. Other sections were no more than leaders or tokens to stimulate later comers to complete them. The great Klebs collection with its incunabula and John Fulton's famous 16th century books are destined for the same Yale library. Look at it how you will, you must yet assent that the library which Cushing collected was one of the three or four most important that any medical man has ever brought together. Its 7696 items made roughly the same total as Osler's; they had been assiduously acquired over 40 years of his life. It contains many great treasures. Let the small collector ruefully remember that the cognoscenti do not believe that a library is important unless it contains old manuscripts and incunabula (this is of course the antiquarians' view and a narrow one). There are 60 early manuscripts in the Cushing collection, some from the old monas-

teries in Austria. In the admirably clear catalogue of Cushing's library (compiled chiefly by Margaret Brinton and Henrietta Perkins with the help of Dr. Fulton, Dr. Francis, and Miss Stanton), there are also 168 incunabula, with 7468 general works. This does not include his modern medical library which he gave away to his pupils and friends.

The dealers from whom Harvey Cushing acquired his books, themselves often scholarly men with a deep knowledge of their craft, can tell how they came to respect his erudition. Few of us, I imagine, are heroes to our book-sellers — how often must they wag their beards at our follies and our ignorance. To be a hero to them is to tread the bookish heights indeed! That Harvey Cushing was one such is a fact the meaning of which should not escape us.

The authors most fully represented in the Cushing library were: Vesalius 51 items, with all of those pirates and authors who used Calcar's plates, 43 Parés, 16 Paracelsus, 60 Osler items, 42 Weir Mitchells, 34 of Linnaeus, 9 of John Locke, 17 of Leonardo da Vinci, 16 of Robert Koch, 11 Keplers, 30 Jenners, 18 titles of John Hunter's writings, 20 of O. W. Holmes, 23 Hippocratic volumes, 42 of William Harvey, 17 of Haller, 24 of Samuel Garth, 61 Galens, 110 Culpepers, 18 Sir Thomas Browne, 60 Robert Boyles, 14 Boerhaave, 15 Claude Bernards. Many very important groups are smaller only because the possible titles are few. "There on my shelves" was indeed an imposing, a stimulating, gallery of savants from Humphry Davy to the Curies, from Luigi Galvani to Faraday and on to Clerk Maxwell, from Roger Bacon to Benjamin Franklin, from Galileo to Albert Einstein, from Soemmerring to Sherrington.

The total effect is, then, that of a great library. One last word is due to the Vesalian collection with its superb run of the *Fabrica*, the *Tabulae sex*, the *Paraphrase of Rhazes* and the *China-Root Epistle*. In the "Apologia" prefaced to this fine book Cushing tells how the collection began and proceeded. It bears the imprint of the true bibliophile and of true scholarship; it will be accorded a manumission by all his fellows in spirit. It is in fact a greater task accomplished than any by Osler or Welch. Here Cushing has most modestly and frankly admitted his difficulties, most of which he had overcome. It is probable that the *Bio-bibliography* gained from the assistance of the scholars in mediaeval Latin who completed it posthumously and took it through the press. Few can honestly condescend to Cushing. He made no pretences and the historical world owes him a debt which it will certainly gladly repay in the years to come.

It calls for no great insight for anyone to understand how great a delight Harvey Cushing had in his books. That it prevented him from going on the ordinary man's holiday to the New England Coast, except under the impossible condition that he took his library with him, was to the family a defect, almost a default. But "hyper-biblioism" has its compensations. It added a zest to his visits abroad when a duty-call at a Clinic could be offset by a browse in the city's book-shops, a possibly envious view of the treasures of a famous library that put ideas into his head. Above all, he enjoyed throughout his life, but increasingly as he grew older, the privileges of that substitute for bridge as a social ice-breaker, the freemasonry of the true bibliophile. He had thence a passport to happiness and, as it turned out, to immortality, for it has been given to few to have a library rotunda named for them. This would not be his only claim to the respect of future ages; though the details of his scientific achievements will in time be forgotten, for this is the fate of all of us, yet his name will abide. It abides more surely in stone.

Government and Science in the United States: Historical Backgrounds

MADGE E. PICKARD*

THE almost-daily release of accounts of varied governmental-scientific interrelations in the United States during recent years seems but to confirm the opinion that this union is a most natural one. General protest and charge of usurpation of residual rights has not been evoked by the wartime federal expenditure of some $24,000,000 in one scientific branch alone (medical research), or the Bush report, paving the way for even more extensive integration of government and science. Yet true it is that things were not always so, and that scarcely over a century ago more than one potential national scientific agency died aborning. The story of this transition is one we believe of interest sufficient to justify telling.

I. The Columbian Institute

The inconclusive War of 1812, with the major American battle won after the peace, was formally over, but the issues had not been settled. In the quarter of a century since its birth the struggle for the establishment of the nation had left but little time for a cultural program; indeed, so young was this United States that adequate time had not elapsed for the complete emergence of her own characteristics, yet so unique was the United States that European patterns were not applicable and already had appeared threads distinctly American. Jeffersonian democracy was in full growth, Jacksonian democracy was appearing, and liberty and union were everywhere. The United States was proud of its discovery of "life, liberty, and the pursuit of happiness," and already it was regarding itself the "haven of refuge for the oppressed," a land of "free men." Nonetheless, Europe was not too many generations removed and the young republic still realized its dependence upon older civilizations for its cultural heritage. Could not there be found some means of building up an independence in this sphere?

To a group of Washington citizens, "impressed with the importance

* Editorial assistant of the Journal. This article was prepared while the writer was associated with the Yale Historical Library. She wishes to express her thanks and appreciation to members of the staff, and particularly to Dr. John F. Fulton, who offered many helpful suggestions.

of collecting and distributing the various vegetable productions of this and other countries," in June 1816 occurred the idea of forming a "Metropolitan Society" which might in a small way contribute to that independence. The capital city was rebuilding, physically and mentally, from its disgraceful burning by British troops, and a spirit of progress was in its air.[1]

These founders proposed to solicit from Congressmen and all "citizens of our country who devote themselves to such objects as the society will embrace, specimens of grains, grasses, fruits, dye-stuffs, medicinal plants, minerals, &c., in short every thing that will be beneficial to the public, whether indigenous or cultivated, within their respective districts." In a garden of some 200 acres in the Mall, appropriated by Congress, they would cultivate plants and seeds given to them, then distribute them "throughout this extensive continent."[2] Their plans included, also, the formation of a cabinet of the minerals of the United States and other parts of the world. "They trust that the beneficial objects which they wish to promote will plead their excuse for the commencement of an establishment, which, they flatter themselves, will hereafter expand and flourish; good intentions and zeal are all they pretend to; and they rely on the cooperation of scientific members to aid them in the important undertaking." "There is scarcely an art, science, or manufacture, which may not be benefited by this association."

Membership of the Metropolitan Society was composed for the most part of amateurs "who possess industry and an ardent desire to promote the objects of the Institute." Among the original 89 citizens, two names stand out: Thomas Law, Esq., who, out of admiration for American institutions and reverence for General Washington, soon after 1793 had come from London to Washington, where he invested most of his savings in houses and lots and was for 40 years one of the city's "most zealous

[1] See Wilhelmus Bogard Bryan, *A History of the National Capital from its Foundation through the Period of the Adoption of the Organic Act* (2 vols., New York, 1914, 1916).

[2] The most detailed accounts of the Columbian Institute are those of G. Brown Goode, "The Genesis of the United States National Museum," *Smithsonian Report, U. S. National Museum, 1890–91* (Washington, 1892), pp. 273–380, and the later and more authentic study by Richard Rathbun, "The Columbian Institute for the Promotion of Arts and Sciences. A Washington Society of 1816–1838, which established a Museum and Botanic Garden under Government Patronage," *Smithsonian Institution, U. S. National Museum*, Bulletin 101 (Washington, 1917). This latter study is based on an examination of all records known to be in existence, including minutes of the meetings, committee reports, drafts of memorials, account books, private correspondence, etc. In the following pages, unless otherwise indicated, Rathbun was the source of information for first-hand material relating to the Columbian Institute.

and enlightened citizens";[3] and the driving force of the group and its first president, Dr. Edward Cutbush, surgeon in the Navy.[4]

By the original constitution, honorary and resident memberships were recognized. The honorary list included former Presidents Adams, Jefferson, and Madison; Lafayette, and Baron Cuvier. The resident membership was drawn largely from the civilian and military branches of the government and both houses of Congress. By a constitutional change in 1820 were added corresponding memberships, composed for the most part of members of Congress. Over a period of years Calhoun, Clay, William H. Crawford, Richard Rush, Samuel D. Ingham, James Barbour, Joel R. Poinsett, Samuel L. Southard, Mahlon Dickerson, John M. Berrien, William Wirt, John McLean, William T. Barry, all Cabinet members, were included in one or the other class of members, as were also members of the Army, Judiciary (including Judge Christopher P. Cranch), government officials and employees, municipal officials, doctors, professional and business people of some importance.

Since the scope of the project was more extensive than the name of the society would indicate and a more appropriate title was deemed necessary, the organization soon became the "Columbian Institute for the Promotion of Arts and Sciences," and provision was made in its

[3] At the age of 17 Law entered the service of the British East India Company in Bengal, where he advanced rapidly, becoming a member of the revenue board at Hugli before he was 21. Later he was judge of Poonah, in 1793 collector, then for six years judge and magistrate of Bahar, followed by two years on the revenue board at Calcutta, when, in 1791, ill health forced him to return to England. In the Cornwallis settlement of 1789 was embodied his system of "mocurrery" or fixed settlement of the landed revenues of Bengal, a fixation of a land tax and abolition of all internal impositions, which the board of control of the East India Company called responsible for "forming a new epoch in Hindostan, from which, they predict, will be derived security and permanent prosperity, and consider it as an important and most beneficial change to 50,000,000 of people, and full of beneficial consequences." He also suggested reforms in commercial relations between India and England.

As a second wife he married Anne Custis, daughter of Washington's stepson. For further details of his life see *Dictionary of National Biography*, XI, pp. 676–77; A. C. Clark, *Thomas Law. A Biographical Sketch* (Washington, 1900); Goode, "Genesis," 276–79, note; obituary in *National Intelligencer*, October, 1834; William Faux, *Memorable Days in America* (London, 1823), the review of which in the *Quarterly Review* evoked *Mr. Law's Reply* (Washington, 1827), containing much autobiographical matter; Wilhelmus B. Bryan, "Dreamers as Capital City Builders," in *Records of the Columbia Historical Society*, XL–XLI (Washington, 1940), pp. 53–58.

[4] Of Cutbush very little is known. He was born in Pennsylvania, probably Philadelphia, some time between 1750 and 1790. He entered the medical department of the University of Pennsylvania in 1790, and upon his graduation in 1794 became attached to the Pennsylvania militia, first as hospital surgeon, and subsequently as surgeon general. From June 24, 1799, to June 20, 1829, he served as a surgeon in the United States Navy. In 1835 he was a resident of Geneva, New York, where he helped to establish the Medical Institute of Geneva College. There he became professor of chemistry; in 1842 he was still at Geneva. He was an elder brother of James Cutbush, pioneer in chemical science.

original constitution, August 8, 1816, for the President of the United States to become its patron.[5] The objects, almost wholly of a utilitarian nature, were many:

To collect, cultivate and distribute the various vegetable productions of this and other countries, whether medicinal, esculent or for the promotion of arts and manufactures.

To collect and examine the various mineral productions and natural curiosities of the United States, and give publicity to every discovery which they may have been enabled to make.

To obtain information respecting the mineral waters of the United States, their locality, analysis and utility; together with such topographical remarks as may aid valetudinarians.

To invite communications on agricultural subjects, on the management of stock, their diseases and the remedies.

To form a topographical and statistical history of the different districts of the United States, noticing particularly the number and extent of how far navigable; streams, agricultural products, the imports and exports; the value of lands; the climate, the state of the thermometer and barometer; the diseases which prevail during the different seasons, the state of the arts and manufacturers; and any other information which may be deemed of general utility.

To publish annually, or whenever the Institute shall have become possessed of a sufficient store of important information, such communications as may be of public utility, and to give the earliest information, in the public papers, of all discoveries as may have been made by or communicated to the Institute.[6]

For the attainment of these worthy ends, Dr. Cutbush suggested:

On taking a retrospect of the importance of this association, I cannot refrain from indulging the pleasing hope, that the members of our national government, to whom has been confided the guardianship of the District of Columbia, will extend their fostering care to this establishment, and, if no constitutional restrictions forbid it, that a part of the public ground, reserved for national purposes, may be vested in the Columbian Institute for the promotion of arts and sciences, for the purpose of carrying into effect the leading objects of the association. . . . I would also, with due deference, suggest, that a small pecuniary aid would enable the Institute, at an earlier period, to extend its benefits to all parts of the United States, and to render an essential service to the nation by perpetuating an establishment worthy of the metropolis bearing the name of our illustrious Washington, where at some future period the youth of our country will repair to complete their education at the national seminary, to which the Botanical Garden and Mineralogi-

[5] Apparently Monroe, serving at the time the society was formed, was the only President who accepted this role. John Quincy Adams and Andrew Jackson, successors, were resident members of the Institute.

[6] Constitution of the Columbian Institute for the Promotion of Arts and Sciences, August 8, 1816, Section I. This is believed to have been largely the work of Dr. Cutbush. Law is credited with the authorship of the articles dealing with agricultural subjects and livestock, and topography, statistics, etc.

cal Cabinet would be important appendages. . . . Where genius and talents are respected, rewarded and promoted, the arts and sciences will flourish, and the wealth and power of the nation increase.[7]

Steps were taken for the realization of the hopes of Dr. Cutbush. A committee of incorporation which had been appointed was instructed, on the basis of a report from another committee, that "amidst a variety of schemes . . . to procure funds . . . the most practicable one appears to them to be that of a lottery. In addition to an extensive and valuable collection of books . . . funds enough may be obtained in this way to lay out, ornament and embellish a botanical garden, to purchase a valuable cabinet of minerals, to erect a building for the meetings and accommodation of the Institute, and to defray all the necessary expenses of the different establishments over which it may have control and jurisdiction . . . funds would be procured, amply sufficient for all the purposes of the Institute for many years." — And Robin will beg me to dance with him, but I will only toss my head. —

For some reason, this did not appear to the committee feasible at this time.[8] Instead, early in 1818, it was recommended that "measures be taken . . . for the obtaining of a lot within the city of Washington, on which a building may be erected for the reception and safe keeping of the books and other property, and for the meetings of the Institute or of its committees." Suitable study of the problem was made and by the end of the year Institute petitioned Congress for "as much of the said reservation ["at or about the junction of the Capital park and the extension of the President's square"] (or if that should not be judged expedient, of some other public ground in the city of Washington) not exceeding five acres."

On April 20, 1818, the Institute received from Congress a charter, which granted it legal existence for a 20-year period, and the right to "procure, by purchase or otherwise, a suitable building for the sittings of the said institution, and for the preservation and safe-keeping of a library and museum; and, also, a tract or parcel of land, for a botanic garden, not exceeding five acres. . . ."[9]

[7] Presidential Address, January 11, 1817. A copy of this is in the library of the Surgeon General of the United States Army.

[8] Rathbun examined the draft of a memorial to Congress for a lottery not to exceed $30,000, dated February 3, 1821. He states that it was deemed inexpedient to present it to Congress just then, and further that "it seems probable that no use was made of it."

[9] *United States Statutes*, VI, p. 214 (Chapter CXXV).

Wrote Josiah Meigs to Daniel Drake, physician, teacher, and scientific leader of the Old Northwest:

I too can give you pleasure by the information that the *Columbian Institute*, of which I have the honor to be President this year, has good prospects. I little doubt that this Congress will, before they rise, give the Institute a few acres of ground for our building and for a Botanic garden. Mr. Barlow made great efforts to obtain this object eight or ten years ago — he could do nothing — but prejudices which *then* were of the *density* of a thunder cloud are now as *tenuous* as the train of the comet. The gentlemen here all know and feel that I have not, nor can have any selfish view, in advocating the interest of the C. Institute; they believe that I love Science and Literature for their own sake. . . .[10]

But not alone by "good intentions and zeal" can an association thrive. By October of this year the general committee, aware of a paucity of men who, like Meigs, loved science for its own sake, reported:

Since the last annual meeting the Institute has frequently advertised for monthly meetings of the committee; and it is a subject of regret that although so few members are necessary to form a quorum, there has seldom been a regular monthly meeting. Whenever there has been such a meeting the propositions have been few . . . no probability appears of any efficient measures being adopted to further the objects of the Institute while such apathy exists among the individual members; unless some remedy be devised, by an alteration of the constitution, or some radical reform of the existing regulations of the Institute.

In response to this plea the society was reorganized. Five divisions were created, three of the sciences — mathematical, physical, moral and political, and two of the arts — general literature and the fine arts. Members were permitted to attach themselves to the division of their preference, being at all times free to make communications to the Institute on "any object of art or science." By this arrangement it was hoped that with something definite for each member to do interest would be stimulated and more frequent attendance and greater activity effected. The secretary was writing, "Hitherto, I am sorry to say, our progress in all branches of our association has been slow and inconsiderable." But he had not lost hope:

Our duty is to make the Institute a national body. Its plans, therefore, though too extensive for our own present scientific or pecuniary means, by embracing every department of human knowledge will afford scope for the formation of a fabric which the genius of our country will find a pleasant and honorable task to

[10] February 5, 1819, in William M. Meigs, "Life of Josiah Meigs," (Philadelphia, 1887) pp. 102–03, in *Biographical Pamphlets*, LXIX.

rear, and which will be worthy of the high destinies of the American nation.[11]

Despite its worthy aims and good intentions, the story of the Columbian Institute is for the most part a dismal one of continuous financial embarrassment. The sole means of subsistence was the annual dues of $5 charged each member, a sum hardly sufficient for regular operating costs — particularly as this obligation was regarded by many members with such abandon as completely to ignore it. At different times various schemes for supplementing the funds other than those already mentioned were suggested: sale of public lots in Washington, solicitation of $1 from each citizen of the city, even a direct appropriation of money from Congress for the society, but there is no record to show that any of these proposals were acted upon. From such records as do exist there can be little doubt but that the demise of the organization was a direct result of its economic weakness.

Pending the erection of the Institute's proposed building, the governments of Washington were more cooperative in providing the organization with a meeting place than in answering its pecuniary pleas. From hotel rooms, the Post Office Building, Treasury Department, and City Hall, apparently late in 1824 the society moved to a room in the Capitol, of which Congress had some few months previously granted them the use.[12] Accommodations as provided were not complete, however, as is shown by a record that on January 14, 1826, it was ordered that the Institute warm its room at its own expense. Some of the larger gatherings were held in the hall of the House of Representatives.

The idea of a national botanical garden, principal agency of the founders of the Columbian Institute for carrying out their plans, was by no means original with them. Since the time of Washington numerous proposals for such a garden had been made, but that of the Institute is notable in the fact that it was the first actual attempt to carry out the idea. For this purpose Congress cooperated by granting, May 8, 1820, the use and improvement of five acres of land in the swampy and unimproved Mall.[13] It was the intention of the organization to enclose their garden by

[11] Asbury Dickins to Dr. William Darlington, December 16, 1819.

[12] In February, 1824, the Institute had memorialized Congress for this privilege, and in May a Senate Committee had recommended that it be granted. On June 1 Adams informed the Secretary of this fact, and on November 2 the group was notified that the room was ready for them. Rathbun states: "While it is to be presumed that use was at once made of it, nearly a year later, or on August 6, 1825, the minutes record that a bill of $1.50 was ordered paid for moving the property of the Institute from the City Hall to the Capitol."

[13] *United States Statutes*, VI, p. 247 (Chapter LXXXI).

a live American thorn fence, planted inside the five-foot board fence which was completed in October 1821, but this was never done. At the end of two more years, December 1823, the report showed the area "completely drained and partly leveled," with canals and drains, an elliptical pond with an island in the middle, and four walks laid out. A memorial for an extension of the garden area was granted the next year.[14] but this was the last help received from Congress. From early in 1828 until the demise of the society in the next decade, aid in various forms was sought for the garden, an enclosing wall, a building for the group, but none of this was supplied, even though in 1837 the supplication of the society received a favorable House committee report and a relief bill.[15]

In view of the straitened condition and the unwillingness of Congress to relieve this situation, one might be inclined to wonder why the organization did not accept the proposal of one Francis Barnes who in 1830 wished to lease the ground as a pleasure resort with paid admissions, in connection with which the objects of the Institution would be carried out. In return for the concession, he proposed to keep up the garden, repair the fence, and erect a building which the society might use as their own. At least one member is known to have been articulate in his protest against acceptance:

> And why is the garden not cultivated, and the proper objects of the Institute accomplished? Because we have no funds. Let those gentlemen who complain, first pay up their annual and other dues; and then see what can be done. No money has been laid out (in any amount) on the Botanic Garden for about 3 years. How then can we expect it to appear? However, with what has been laid out, the ground has been well drained; good gravel walks made; and more than 1,000 shrubs and trees planted; and in a thriving condition.

Some time was devoted to minor matters:

> Mr. Dickens, Secretary to the Columbian Institute, brought me, to examine, designs for a seal and diploma for that society, well drawn, and which, suggesting some alterations, I approved. They have not adopted the device I had proposed for a seal, but propose in its stead a hissing rattlesnake coiled around a book, to which I objected as odious imagery; and instead of the classical motto from Horace, "Lucent Sidera Nautis," with the ship, they have discarded the ship, and substituted, for the motto, "Favent Astra," which I disapproved, as an idea borrowed from the false science of judicial astrology, and therefore inappropriate to an institution of true science.
>
> On this, as on the former occasion of the pediment to the Capitol, I observe

[14] *Ibid.*, p. 316 (Chapter CXCVIII).

[15] *House Report 226, H. R. 934*, 24th Cong., 2nd sess.

the extreme diversities in the sentiments of learned and ingenious men upon matters of taste and invention. My device for the seal and motto were in my own self-conceit ingenious, classical, elegant, and appropriate, but no one thought them so except myself, and they have taken in its stead a serpent sibilant, which would be an excellent emblem for the House of Representatives at this time, but is, in my judgment, a very absurd one for a learned and literary institute, and instead of the stars of Horace, illuminating the mariners' night, they have the stars of judicial astrology, favoring the deadly venom of the rattlesnake.[16]

Meanwhile, a modicum of success was being achieved along other lines. The mineral cabinet, though never large, was growing into a museum containing zoological, botanical, ethnological, and archaeological specimens. Transferred to the National Institute in 1841, it served as the nucleus of the collection of the National Museum which was formed later in the century. Advice of the society was sought in formulating instructions for the Wilkes Exploring Expedition, 1838–42,[17] and in the preparation of a national pharmacopoeia. A library of sorts was built up, though no catalogue of its holdings has been found. Two Institute members, William Lambert and William Elliot, were important, as individuals, in studies for determining the meridian of Washington, establishing a national astronomical observatory, and fixing a system of weights and measures. Financial limitations prevented publication of the society's *Transactions* and other works, as originally planned; the total output was very inconsiderable: six public addresses, one quarto pamphlet containing proceedings of the Institute's organization and the constitution, constitution of 1820, sets of standing rules, one paper presented at a meeting, and a circular of instructions for collecting and preserving specimens.

The reorganization of 1820, intended to stimulate interest and attendance, failed. For the most part regular meetings, with average attendance of five to nine over a period of years, were uninteresting. Much

[16] Charles Francis Adams, editor, *Memoirs of John Quincy Adams, Comprising Portions of His Diary from 1795 to 1848* (12 vols., Philadelphia, 1874–77), VII, pp. 443–44.

[17] This exploring expedition was first proposed in 1828. After several officers had declined to command it, Charles Wilkes, although only a lieutenant, was chosen. A civilian corps of specialists accompanied the fleet, which consisted of the *Vincennes* (flagship) and five other vessels. The expedition, absent from the United States from August 1838 until July 1842, explored the coast of the Antarctic continent, the islands of the Pacific, and the American northwest coast — some 280 islands and adjacent waters, 800 miles of streams and coasts in the Oregon country, and 1600 miles of the coast of Antarctica. One of the parties established an observatory on the summit of Mauna Loa in Hawaii, where valuable observations were made. From 1843 to 1861 Wilkes was on special service preparing for and publishing the information collected by the expedition. In 1844 his five-volume *Narrative of the United States Exploring Expedition* was brought out. There were several later editions and brief popular accounts. The scientific volumes appeared from time to time, the last in 1874.

of the time was devoted to matters of pure business; few papers were actually ever presented, and of these few, so far as is known, only one, that of Thomas Law on national currency, was ever published. Annual and memorial meetings, on the other hand, were well attended. Fortunately there has been preserved in the accounts of contemporaries something of a few of these gatherings.

On December 31, 1827, Adams recorded:

> And at two he [Mr. Samuel L. Southard of New Jersey, Secretary of the Navy] commenced his anniversary discourse to the Columbian Institute. He was about an hour in delivering it, and gave very general satisfaction. It was upon the obligation upon the Government of the United States to patronize science. He maintained the cause with great zeal and ability, arguing it as a duty resulting from our situation among the nations of the earth, and recurring specially to the expressed opinions of Washington, Jefferson, and Madison. The apartment of the Institute was well filled with company, one-half of which at least were ladies.[18]

This, a dinner meeting, was held at Godsby's Hotel "with about forty members of the Columbian Institute;" guests included the British Minister, the Brazilian Chargé d'Affaires, Prince of Musignano, and Captain Basil Hall, the British traveler.[19] Adams "gave a toast, 'The Cause of Science,' which were the first words of Mr. Southard's address."

Even two years later, when the objects of the society met with slight if any encouragement and regular meetings had become almost an academic matter, upon the occasion of the anniversary address of Mr. Edward Everett, representative from Massachusetts and leading American orator of his day, "The hall was crowded with company, a large portion of ladies."

> Mr. Everett's discourse . . . was literary, philosophical, scientific, and popular; an exposition of the character and usefulness of societies such as the Columbian Institute; a description of many of the most important modern inventions and discoveries, and of the manner in which they had been made, with several

[18] Adams, *Memoirs*, VII, pp. 392–93.

[19] In 1827–28 Hall, following the example of many of his fellow Britishers, journeyed through the United States. From Quebec, accompanied by his wife, baby, and maid, he leisurely traveled down the Atlantic coast, across the southern states to New Orleans, thence up the Mississippi to Cincinnati, where his child became ill, necessitating a speedy return to "civilization." His three-volume account of this trip, *Travels in North America in the Years 1827 and 1828* (Edinburgh, 1829), went through many editions both in America and abroad, and was one of the most widely-read of the numerous travel accounts. Though his frank criticism of the United States aroused widespread indignation here, it is one of the most complete and interesting analyses of the customs and manners of the American people and their institutions. Almost nothing was too insignificant to escape his scrutiny. With his *Travels* Hall brought out *Forty Etchings from Sketches Made with the Camera Lucida in North America in 1827 and 1828*, reproductions from 274 sketches of architecture, people, landscapes, ships, etc. Hall's portfolio of originals is now in the possession of the library of Indiana University.

interesting anecdotes relating to the discoverers and inventors. He confined his subject to the physical sciences, and did not enter upon the consideration of moral or political discovery . . . he argued the moral certainty that nature had yet in store numerous secrets in reserve for the favorites who will devote their lives to the search of them. . . . I regretted to hear . . . a simple admission that the power of giving encouragement to literature and science was much greater at least in the State Governments than in that of the Union. . . .[20]

And of this same address Samuel Knapp, editor, biographer, and miscellaneous writer, wrote: " . . . splendid performance. Line upon line and precept upon precept are still wanted to rouse our Government to become the patron of letters, the arts and sciences, and the friend to the learned men of the country."

The political factor could scarcely be ignored as Jacksonian Democrats looked with ruggedly individualistic suspicion at any plan to strengthen the federal government in the intellectual sphere, looked doubly hard when that scheme originated in the northern or eastern section of the country, and looked even more askance at anything with which the Adams name was connected. In view of this, some difficulty might be experienced in reconciling with it Adams' statement that "the principal members of the Administration are now members of the society." Perhaps the answer is to be found in the motives which might have impelled their association with the society. It is not entirely improbable that such association was prompted by its expediency rather than by any sort of intellectual alliance. Evidence of the carry-over of political disunity we have in the refusal of a president-elect to accept the office, attend meetings, or even to deliver an address because, "It was impossible for me to open my lips or write a sentence before the public but there were liars in wait — to catch, to garble, to misrepresent, to falsify what I say."

This, added to the financial problems which made impossible the sustained interest of its members, proved insurmountable for the potential national society. In 1837 only one meeting of the group was held and the Columbian Institute dissolved without formality before the expiration of its charter the next year. Sporadic attempts were made to revive it later, but nothing came of them; "the spiritual antecedent of the National Institute and the National Academy of Sciences" was dead.

The signing of its certificate came a few years later:

Columbian Institute
July 17, 1841

WHEREAS the charter of the Columbian Institute, for the promotion of arts and

[20] Adams, *Memoirs*, VIII, p. 171.

sciences, expired on the 20th day of May, 1838; and whereas a new society has been formed by voluntary association, by the name of the National Institution for the Promotion of Sciences, and whereas the said National Institution has, by a resolution passed on the 12th day of July, 1841, invited the members of the Columbian Institute to become members of the said Institution, and to deposit with it the effects, books and papers of said Institute:
Resolved, That the said invitation be, and the same is hereby accepted.
Resolved, That a copy of this Resolution be communicated to the said Institution.

ASBURY DICKINS
Secretary of the Columbian Institute[21]

A letter from a committee of the National Institution to the secretaries of the War and Navy Departments, January 1, 1842, mentions among other things in their custody "the books, minerals, and works of art belonging to the late Columbian Institute," showing thereby that the transfer of effects had been made.[22] It is quite fitting that the last traces of the Columbian Institute should come from the man most intimately connected with its beginning, Dr. Cutbush, who on January 20, 1842, wrote to the National Institute:

I beg that you will have the goodness to convey my thanks to the members for this memento [enrollment as corresponding member of the National Institution] of their friendship and recognition of past services in the cause which has been so honorably received at the seat of Government; and I most sincerely hope that all the objects which engaged the attention of Thomas Law, Esq., and myself, in 1816, in establishing the Columbian Institute, will *now* meet the approbation and support of the Government, and the scientific men of the District of Columbia.[23]

II. THE NATIONAL INSTITUTE

There is little doubt that the founders of the National Institution for the Promotion of Science, organized in Washington on May 15, 1840, "to promote Science and the Useful Arts, and to establish a National Museum of Natural History, &c. &c.,"[24] expected to achieve their aims in whole or in part by the linking together of their body with that of the Smithsonian Institution which was to be established in the city of Washington "for the increase & diffusion of knowledge among men," according to the provision of the will of James Smithson.[25] In the five years

[21] *Bulletin of the Proceedings of the National Institution*, II, p. 113 (Stated Meeting, September 13, 1841). [Hereafter referred to as *Bulletin*.]
[22] Goode, "Genesis," p. 275.
[23] *Bulletin*, II, p. 156 (Stated Meeting, February 14, 1842).
[24] *Bulletin*, I (1840), p. 3.
[25] See later for discussion of the Smithsonian Institution, and pp. 270–71 for treatment of the intents of the National Institution's founders regarding the bequest.

which had elapsed since the terms of the Smithsonian bequest had been made known to the United States, and particularly since 1838 when the money was actually delivered into the country, the subject had naturally been one of no inconsiderable discussion, and many were the suggestions for the most suitable disposal of the fund. Fresh, too, in the minds of these Washingtonians was the memory of the Columbian Institute's unsuccessful attempts to enlist the support of the federal government in the scientific pursuit. But pre-election straws had indicated the shifting of the political winds, the increasing dependence of governments upon science was gradually making itself felt, and the probability of financial security all augured well for a new society.

Organization of the National Institution was soon under way, with provision made for members of the President's Cabinet to be its directors, one annual, and monthly "stated" meetings, and special meetings to be held upon the request of five resident members.[26] Membership was made up of about 90 representative men in Washington: congressmen, scientific men, clergymen, and other citizens, and about an equal number of corresponding members. Officers included the secretaries of War and Navy, ex-President Adams, and the Chief of Topographical Engineers.[27] Spheres of interest, embracing "every branch of knowledge," were composed of eight scientific classifications: Geography, Astronomy, and Natural Philosophy; Natural History; Geology and Mineralogy; Chemistry; Application of Science to the Useful Arts; Agriculture; American History and Antiquities; and Literature and the Fine Arts.[28]

A committee was appointed to inquire into the expediency of petitioning Congress for an act of incorporation, but reported that the present session of Congress was hardly the time.[29] Circulars were sent to officers of the Army in distant posts, showing how they might be useful to the society, and to governors of the states, consuls and diplomatic representatives of the United States, announcing that they had been made corresponding members of the organization, and inviting their aid. The geographical societies of London and Paris and the principal scientific institutions of Europe were informed of the establishment of the National Institution and their correspondence solicited. Members of Congress were invited to bring to Washington specimens of the natural productions of

[26] *Constitution of the National Institution* (Washington, 1841).

[27] Heads of other departments were added at a later date.

[28] Other departments, such as those of Natural and Political Sciences, and Medicine, were later created.

[29] *Bulletin*, I, pp. 4–5 (June 26, July 13, 1840).

their districts, and Lieut. W. Porter of the Navy suggested that both the Navy and Army be permitted to assist by collecting specimens. The aid and cooperation of leading societies and institutions in the United States was also sought, and exchanges with them were requested: from Albany, Boston, Savannah, Baltimore, Hartford, Philadelphia, Providence, Worcester, St. Louis, and Tuscaloosa.[30]

As its first president the National Institution elected Joel R. Poinsett, "the Dr. Cutbush of the organization."[31] From his first anniversary address[32] much can be learned of the motivation of the leaders and the means by which they hoped to effect their aims:

> The lovers of science, literature, and the fine arts, residing in this District, felt sensibly the absence of those resources which are found elsewhere, and are necessary for the attainment of knowledge. They were mortified to perceive that the great advantages possessed by the public authorities at Washington were neglected, and that, at the seat of Government of this great nation, there existed fewer means than in any other city of the Union of prosecuting those studies, which, while they impart dignity and enjoyment to existence, lead to the most useful practical results. They believed it to be their duty to arouse the attention of Government to these deficiencies, and, at all events, to address themselves to the task of supplying them as far as could be done by their individual and combined exertions. For these purposes they have formed an association, and applied

[30] *Ibid.*, pp. 6–8, 47–48, 72 (August 10, September 14, October 12, 1840; February 8, March 8, 1841), and II, pp. 142–46 (January 24, 1842).

[31] Born in Charleston, South Carolina, 1779, Poinsett attended the academy of Timothy Dwight 1794–96, after earlier private education. From 1796 to 1800 he studied abroad at St. Paul's, medical school at Edinburgh, and under Marquois, former teacher in the Woolwich Military Academy. Though his interests centered mainly in languages and natural and military science, his father called him home to study law. The next year he began a long tour of Europe and western Asia, which, with the exception of some months spent at home during 1804–06 to bury his father and sister, occupied his attention until war appeared imminent in 1808. Failing to secure a military post which he desired, in 1810 he became special agent in Rio de la Plata and Chile, where he remained for four years and became involved in political affairs which eventually forced his return home. Interest in local South Carolina politics, at that time centering around the internal improvements movement, gave way to national politics. After Congressional service, from special missionary to Mexico during the latter half of 1822 he advanced in March 1825 to the position of first minister from the United States to that country. His four years in this position culminated in his recall at the request of the Mexican government after his involvement in their politics. In 1827 he was called from retirement by Van Buren to become Secretary of War, a post which he held until the end of the administration, instituting many reforms in the department.

For details of his life see sketch in *Dictionary of American Biography*, XV, pp. 30–32; Herbert E. Putnam, *Joel Roberts Poinsett A Political Biography* (Washington, 1935); J. Fred Rippy, *Joel R. Poinsett, Versatile American* (Durham, 1935); Dorothy M. Parton, *The Diplomatic Career of Joel Roberts Poinsett* (Washington, 1934). Twenty-three volumes of his papers and letters from 1801 to 1851 are preserved in the Library of the Historical Society of Pennsylvania; the Personal Collection of the MSS Division of the Library of Congress contains the originals of his papers on the opening of the Smithsonian Institution.

[32] *Discourse on the Objects and Importance of the National Institution for the Promotion of Science, Established at Washington, 1840, Delivered at the First Anniversary* (Washington, 1841).

themselves to collect specimens of geology and mineralogy, and other objects of natural history, and for the short period of its existence the efforts of the Institution have been eminently successful. They have entered into correspondence with other learned societies and have been encouraged to proceed by their approbation, and profited by their generous cooperation. They have invited the assistance of their fellow-citizens in the most distant States and Territories, and hope, by their aid, to collect documents and facts illustrative of the early history of our country, specimens of its geology and of its mineral and vegetable productions, and, if not to preserve the animals and plants themselves, which are passing away before the progress of settlement and cultivation, at least to perpetuate their forms, and the memory of their existence. They hope to be able to illustrate these subjects and others connected with them by a series of gratuitous lectures, and entertain a confident expectation that numbers, whose duties compel them annually to assemble here, will view with interest collections of the natural productions of America, drawn from every State and Territory in the Union, and, becoming sensible of their utility, will contribute on their return to swell their amount, and to spread throughout the country a taste for literary and scientific pursuits. . . .

There can be no doubt that a National Institution, such as we contemplate, having at its command an observatory, a museum containing collections of all the productions of nature, a botanic and zoological garden, and the necessary apparatus for illustrating every branch of physical science, would attract together men of learning and students from every part of the country, would open new avenues of intelligence throughout the whole of its vast extent, and would contribute largely to disseminate among the people the truths of nature and the light of science.

Poinsett believed the lag of the United States behind Europe in scientific developments was due "in some measure . . . to the want of such an Institution as ours," to a lack of governmental support, and primarily to the "circumstances of the country, which compel men to enter early on the theatre of life: there is little leisure in youth for the acquisition of the exact sciences, and for men of more advanced age, the opportunity and means are too rarely presented for the successful prosecution of such studies." Democracy, "so far from being inimical to science, renders the mind independent in thought and action — invigorating and fitting it for any pursuit." In mentioning the Smithsonian bequest, Poinsett by implication rather than words suggested the desirability of its being affixed to the National Institution. By his "truly large and philosophic views."[33] his "sound reflection as well as the pure, elegant, but unambiguous style,"[34] Poinsett undoubtedly did much to present the cause of the society; truly his discourse was "precisely what it ought to be."[35]

[33] Letter from Richard Rush to Poinsett, January 31, 1841, quoted in Putnam, *Joel Roberts Poinsett*, p. 200.

[34] Judge Story to Poinsett, February 13, 1841, *ibid.*

[35] Du Ponceau to Poinsett, January 28, 1841, *ibid.*

Peter S. Du Ponceau, aged president of the American Philosophical Society, was generous with his counsel:

When our Government shows a sincere disposition to promote science and general knowledge, without which no free nation can long exist, it will produce many excellent effects; it will promote confidence in the National Administration; and, above all, it will soften the rage of party spirit, which threatens to involve us in the fate of the Roman Republic. . . .

You have therefore done wisely in obtaining from the heads of the Government that they should appear as the head of your Institution. It is to be regretted that the Chief Magistrate of this great nation does not occupy that position in regard to this institution which the world will naturally except from him, and which might enable him to be so eminently beneficial to his country.

I however cannot but highly approve of your choice of directors; but you must be sensible that men who, like them, have on their shoulders, in a great measure, the destinies of their country, cannot give much attention to the official duties which you have imposed upon them. It is from a higher sphere that they must govern your institution. . . .

I must now touch upon a subject which appears to me of the highest importance, and of which it might, perhaps, be thought presumptuous in me to speak. I doubt much whether you can ultimately succeed without the aid of the Government. Were there nothing but your current expenses in the printing of your Bulletin, and ultimately of Transactions, which I hope you have in view, money will be indispensably wanted. I have, in the beginning of this letter, explained, that I think the Government is interested in assisting you, and I believe that they have the means fully in their power. I have always been of opinion that it was such an institution as yours, at the seat of Government, that Mr. Smithson had in view when he made his munificent legacy to the United States, He could not mean, in my opinion, that the money should be applied to the promotion of any specific branch of knowledge, much less to the foundation of a School or an Academy. His views were more extensive. Issued to promote Science in all its branches and departments, and, therefore, he wished his institution to be fixed at the seat of Government; from whence, as from a centre, the rays of Science might be diffused throughout the whole country. And, therefore, Congress cannot find a better opportunity to execute the will of that beneficent testator than by laying hold of your institution, and making it its own.

Here let me be understood. I do not mean that Congress should immediately put into your hands the large legacy of Mr. Smithson, to erect with it grand buildings, make a great parade, and fail in the end as so many others have done. That cannot be expected to be done until your society has become firmly established on a solid basis, and has acquired that high reputation which I hope it will always have in view of the learned world; but, in the meantime, Congress might, out of the interest, aid your exertions in proportion to your progress, and, at least, in the beginning, enable you to make those publications without which you can not well expect to proceed. Thus, your institution would grow under their fostering hand, and, in process of time, the great design of Mr. Smithson would be completely fulfilled. I say, in process of time, for time will certainly be required,

before you can rise to the rank in science which you may justly keep in view. In my opinion, you should not attempt too much at once, but proceed gradually and systematically, being satisfied with every year showing to the world some progress, but not imagine that your institution, as I hope it will one day be, will come out at once, fully armed, like Minerva from the head of Jupiter.[36]

From abroad, in a letter from Hon. Virgil Maxcy, Chargé d'Affaires of the United States to Belgium, December 29, 1840, came encouraging words:

It affords me the highest gratification as an American citizen, and as the representative of our Republic to a foreign country, to learn that the National Institution, recently founded at Washington, has been so favorably received by our men of science; and I can not but indulge a hope that the public generally will lend it a generous confidence and cordial cooperation, and thus supply what has long been to us, who occupy so high a rank in the scale of civilization, no little reproach; the want of some Society or Institution which may compare with those of other nations, and sustain the reputation of our Republic in the great cause of scientific investigation, in which no country can feel a deeper and more abiding interest than our own, as every day evinces some new fact illustrative of the extraordinary skill, energy, and ingenuity of our citizens — qualities in which they are equalled by few, and surpassed by no other people.[37]

Maxcy also wished to see the union of the Smithsonian and the National institutions. From expressions of the feelings of the society's leaders on the subject, it must be concluded that this idea was not long in appearing, if not in their minds before the actual formation of the association. Secretary Francis Markoe, Jr., wrote to Benjamin Silliman, Yale chemist and editor of the *American Journal of Science*, "The hope is indulged that the Smithsonian will in time become, if not identified with, ancillary to the National Institution."[38] On more than one occasion President Poinsett made similar remarks: to the Institution, "Although I hope and believe that Government will become convinced that the best disposition it can make of the Smithson fund, and that most suited to carry into effect the benevolent intentions of the testator, will be to confide its application to this Institution, I would not have you depend altogether upon that expectation. Let us rather place our reliance upon the cooperation of the other scientific Institutions in the United States, which have so manifest an interest in promoting our views . . . ;"[39] to Adams with whom on more than one occasion he discussed the possibility of placing the investment

[36] *Bulletin*, I, pp. 11–13 (November 9, 1840).

[37] *Ibid.*, pp. 46–47 (February 8, 1841).

[38] Letter accompanying copy of Poinsett's *Discourse*, January 29, 1841. This interesting document is in the possession of the Sterling Memorial Library of Yale University.

[39] *Bulletin*, II, pp. 69–70 (March 8, 1841).

and disposal of the Smithsonian funds under the society's management.[40] Senator William C. Preston of South Carolina introduced bills incorporating the National Institution and establishing the Smithsonian Institution under the joint control of a superintendent and the officers of the National Institution.[41]

But the Institution was not idly sitting by awaiting the windfall of the Smithsonian fund, for their correspondence was beginning to bear fruit, and from all parts of the country, and even outside, donations for their collections were pouring in — a manuscript collection of 100 papers and documents illustrating the history of South Carolina; the tooth of a mastodon, found in Arkansas; a description of the Gutenberg Festivity as celebrated at Leipzig; 48 specimens of ancient wood; 24 Roman, Moorish, and Arabian coins, found near Velas Malaga, Spain; the head of a Mexican idol; a statuette from Tivoli; a vase from Pompeii; specimens of the robin fish; "130 specimens of North American Birds, set up in natural attitudes, and placed on stands, with a list of names, sexes, and habitats"; 650 specimens of shells; and as a parting gift, "A Ball made by the Greek females at Athens, of the marble of the Parthenon, and thrown from the Acropolis when it was besieged by the Turks. From His Excellency Martin Van Buren, President United States."[42]

A committee reported that the Secretary of the Navy had placed the advance collections of the Wilkes Exploring Expedition under the care of the National Institution and had promised to meet expenses to be incurred up to $5,000, the extent of the congressional appropriation for the purpose of caring for them.[43] A few months later another committee announced that the collection of Indian portraits and curiosities of the War Department had been deposited in the cabinet of the National Institution, and, in reply to their request, they almost immediately received the lithographic plates and historical sketches connected with the portraits.[44] These holdings were further augmented by the deposit of the minerals and geological specimens collected by David Dale Owen during his public land survey; the minerals, books, manuscripts, and other articles forming part of the Smithsonian bequest; and the "effects, books, and papers" of the defunct Columbian Institute.[45]

[40] *Memoirs*, X, pp. 462–64 (April 14, 17, 1841), for example.

[41] *Congressional Globe*, 26th Cong. 2nd sess., pp. 181–82 (February 17, 1841).

[42] These are only a few of the many donations listed in the pages of the *Bulletin*.

[43] *Bulletin*, II, p. 73 (March 15, 1841). For discussion of the conflicts of authority for control of the government collections see pp. 285–87.

[44] *Ibid.*, pp. 85–86 (June 14, 18, 21, 1841).

[45] *Ibid.*, pp. 94–95 (July 12, 1841). The Smithsonian materials were comprised of his personal effects, which included among other

Some indication of the state of affairs at this time may be had from a letter of D. Webster to the organization:

I congratulate the members of the Institution on its flourishing condition and prospects. They have accomplished much within a very short period. If their efforts be continued with the same zeal and success which have been hitherto displayed, the Institution may be expected soon to enjoy the distinction of having elevated the scientific and literary character of the country.

I beg you, gentlemen, to assure the Society that I feel a real interest in its praiseworthy cause, and will do any thing in my power to promote it.[46]

There is evidence that the new Secretary of State had already found it in his power to do something for the promotion of the Institution, and also further indication of the status of the society, as well as additional advice, in a letter from Du Ponceau:

The temporary accommodations afforded you by Mr. Webster do great honor to his head and to his heart. They show that he loves science for the sake and that he is animated by the spirit of the age we live in. You are under a very great obligation to him, for, in the present state of your finances, I do not see how you could have gone on without that most opportune aid, at the time when future success depend in a great measure upon economy. . . .

You still want a capitol to your Corinthian edifice. . . . None deserve that honor more than our present Chief Magistrate. At the end of his term each President would, of course, leave the patronage over your institution to his successor. . . .[47]

Following this advice a committee was appointed "to wait upon the President and invite him to become Patron"; within a short time it had received from him a letter communicating "the assurance of the deep interest which I take in the objects of the Institution, my best wishes

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things "sundry articles of plated ware and philosophical instruments," a few books and pamphlets; linen, "two large boxes filled with specimens of minerals and manuscript treatises apparently in the testator's handwriting, on various philosophical subjects, particularly chemistry and mineralogy. Eight cases and one trunk filled with the like." Markoe in a letter written to the American Philosophical Society in 1841, characterized this as "a superb and very large collection of precious stones and exquisite crystallized minerals . . . decidedly the richest and rarest collection in the country." A committee of the Institution in 1841 reported upon it: "Among the effects of the late Mr. Smithson . . . is a Cabinet which, so far as it has been opened and examined, proves to consist of a choice and beautiful Collection of Minerals, comprising, probably, eight or ten thousand specimens. The specimens, though generally small, are extremely perfect, and constitute a very complete Geological and Mineralogical series, embracing the finest varieties of crystallization, rendered more valuable by accompanying figures and descriptions by Mr. Smithson, and in his own writing. The Cabinet also contains a valuable suite of meteoric stones, which appear to be specimens of most of the meteorites which have fallen in Europe during several centuries." *Bulletin*, II, p. 95 (July 12, 1841). The collection remained in the custody of the National Institution until 1858, at which time it was taken over by the Smithsonian. Unfortunately it was destroyed in the Smithsonian Institution fire of 1865.

[46] *Bulletin*, II, p. 101 (August 9, 1841).

[47] *Ibid.*, pp. 96–97 June 14, 1841).

for its complete success, and my congratulations upon these achievements which have already crowned its undertakings; and which furnish at once an evidence of its present enterprise and progress, and a high promise of eminent future triumph and usefulness. I salute you and your associates of the Institution with sentiments of high respect and consideration."[48]

Other friends were reassuring the society: their president who was no longer in Washington[49] — "I hear on every side the most flattering accounts of our increasing collections and congratulate you upon the progress of the Institution. The national legislature will, I trust, see in its prosperity a sufficient reason to continue its protection, and the expediency of entrusting us with the disposal of a fund to diffuse knowledge among men";[50] Richard Rush, from Sydenham, his home near Philadelphia:

> I think no one could read it [*Bulletin*] without perceiving the advantages of such an institution. During the short period that it has been in operation, the indications are ample, both in the diversified objects which it proposes to itself, and in the communications addressed to it, that it will be likely to prove metropolitan in character and usefulness, as it is in situation.[51]

Early in 1842 Mr. Preston introduced into the Senate a bill incorporating the memorial of the Institution, praying for a charter of incorporation, which was "seen with great pleasure" by Dr. Du Ponceau. "It fully coincides with the views that I have expressed. The object, in my opinion is to preserve the superiority of the National Institution over the Smithsonian, and of the Government over both. I would beg leave to suggest whether it would not be advisable to make some small alteration in the name of the National Institution so that it should not bear exactly the same name with the Smithsonian, but one expressive of some degree of superiority. I would recommend, for instance, that of Institute, which appears to me more dignified than that of institution, which is equally applicable to a school or college as to a great national establishment for the promotion of science. My idea would be to call the national establishment the 'National Institute for the Promotion of Science,' and the subordinate one the 'Smithsonian Institution,' without more."[52]

On June 2 the bill providing for the incorporation of the Institute was

[48] *Ibid.*, pp. 117, 120 (October 11, December 13, 1841).

[49] During Poinsett's long absence, Peter Force, the capable and versatile vice president of the society, served as acting head.

[50] *Bulletin*, II, p. 157 (February 7, 1842).

[51] *Ibid.*, p. 201 (dated March 4, 1842). For details of the role of Rush in governmental-scientific activities see later (Smithsonian Institution).

[52] Letter of April 1842, in Goode, "Genesis," p. 293.

passed by the House with a vote of 105 to 66,[53] and within a few days a meeting was held at Mr. Markoe's "for the purpose of conferring upon the project of connecting the organization of the National Institute for the Promotion of Science, with that for the Establishment of Science." Senator Preston expressed his idea that the Institute should have a $20,000 appropriation and occupation by law of a large portion of the Patent-Office building as a depository for the materials to be brought by the exploring expedition. Adams had "the warmest disposition to favor them, and thought there was but one difficulty in the way, which might perhaps be surmounted. I had believed that the whole burden and the whole honor of the Smithsonian Institution should be exclusively confined to itself, and not entangled or commingled with any national establishment requiring appropriations of public money." A committee of five members of the Institute was appointed to confer with Preston and Adams on means of connecting the Smithsonian Institution with the National Institute,[54] but nothing apparently came of this. Preston's bill (S. 224) providing for the union of the two, introduced in April, was on July 18 laid on the table and not taken up again.[55] Nine days later it was announced that "the President did, on this day, approve and sign . . . an act to incorporate a society in the District of Columbia, by the name of the National Institute for the Promotion of Science."[56]

By midyear 1842 there was a hint that all was not well with the Institute. A resolution was passed appointing a committee to solicit private contributions of money and property — "to invite the liberality and public spirit of our countrymen in aid of this Institute, and to obtain contributions in money, property, and such articles as are adapted to its purposes."[57] In their report, rendered some six weeks later, they proposed making

An appeal to the public, by disseminating an account of the Institute, its past efforts, its condition, and its prospects, and an exhibition of the many reasons

[53] *Congressional Globe*, 27th Cong. 2nd sess. p. 569.

[54] Adams, *Memoirs*, XI, pp. 173–74 (June 11, 1842).

[55] *Senate Journal*, 27th Cong., 2nd sess. p. 474. It is to be regretted that the "eloquent speech" of the "Hon. Mr. Preston of the U. S. Senate" to members of the National Institute on June 13, 1842, has not been preserved. In it "he descanted at length on the history and labors of the Institute, what it had done, and what it proposed to do, its capacity to be eminently useful to the country, if properly sustained by the country and Congress, the advantage of uniting the Smithsonian Institution with it, &c., &c. and appealed to Congress, and to the liberal citizens of the United States, to come forward in aid of a glorious cause, and in accomplishment of the great national objects, which the Institute has in view, &c., &c." *Bulletin*, III, p. 326.

[56] *Journal of the House of Representatives* 27th Cong., 2nd sess., p. 1173; *United States Statutes*, VI, p. 845 (Chapter CV).

[57] *Bulletin*, III, p. 335 (June 13, 1842).

why it should be sustained and encouraged by the citizens of the United States. In their judgment the best means of doing this will be the publication of the remarks addressed to the Institute by the Hon. Mr. Preston, Senator from South Carolina, on the evening of the 13th of June last.

They also propose to address circulars to prominent individuals in the different States, inviting their cooperation, particularly in receiving and transmitting contributions.

They recommend that the Institute authorize the President and Secretaries to sanction their circulars by their official signatures. . . .

They think that a system of exchanges of mineral and geological specimens, and perhaps of other articles, with the private and public collections in different parts of the Union, may be established with reciprocal advantage; and that the Museum of this Institute may, by these and other means, be enabled in time to exhibit the various treasures of our different soils; and they would suggest the appointment of a committee to whom this subject should be given specially in charge.[58]

A series of resolutions putting these recommendations into effect was proposed in September, and a circular incorporating them was issued October 15, 1842,[59] but their appeals were without avail, so far as financial contributions were concerned. The year 1843, however, was characterized by an enormous influx of materials for their collections — from a Cream Nut Pod and three bags of Seed Beans from Chili to the Skin of a Sea Wolf and a communication regarding a model steam engine in the Philadelphia Navy Yard. Their predicament was summed up by Joseph R. Ingersoll, Representative from Pennsylvania, at the close of the year:

It will readily be perceived how inadequate to these objects are its precarious resources. The very liberality which in continual bounty provides for it objects which are adapted to its character and are well calculated in themselves to promote its usefulness, becomes a burden when means are wanting to give to the fruits of benevolence a reception and display corresponding with their variety and value. . . .

A monthly record of contributions reflects upon the kindness and public spirit of the donors, whose numbers are daily increasing, and whose good will knows no bounds. But the proofs of their taste and kind feeling are imperfectly provided for, and sometimes altogether neglected, from the narrow fortunes of the infant establishment. There is no ascertained place of permanent or even secure deposit . . . no fund from which supplies, in any degree proportioned to daily necessities, can be derived. . . .

It never was expected that a National Establishment could subsist upon individual bounty alone. When it shall have derived dignity and confidence from the permanent encouragement of the Congress of the United States, it may well be

[58] *Ibid.*, p. 335 (August 8, 1842).

[59] *Ibid.*, p. 336. Further details of the recommendations, and outgrowths therefrom are given later, pp. 279–80.

hoped that private munificence will be felt in mingling personal associations and favors with the steady support contributed by the Government. A period has now arrived, when legislative assistance may be expected without arrogance, and sought without presumption. They who hoped to behold in the fullness of time, an institution of rich endowment and established utility, were perfectly willing to incur all the hazards of the experiment. Having done so, not without occasional effort, and even loss, they embrace the occasion of appealing at once to the sympathies of the public and the patronage of the Government.[80]

At this meeting of the Board of Management, December 23, 1843, it was resolved that another circular be prepared, appealing to the liberality of the public, and that a memorial be presented to Congress "on the subject of the condition and wants of the Institute," to be introduced to the Senate by Mr. Levi Woodbury of New Hampshire and to the House by Mr. Adams. Mr. Woodbury, as a basis for the support which he promised to give the measure, stated that congressional aid was certainly constitutional, since the Institute was located in the District of Columbia over which Congress had exclusive legislative power. Furthermore, the Institute was a public body, and, among other things, was engaged in the care of certain articles of public property, an expense for which some compensation was sought.

When we add to these considerations the facts that the first articles placed in charge of the Institute were collected from the War, Navy, and State Departments, in some of which trouble and expense had before been incurred in taking care of them, and that many of the additions since are from persons connected with those Departments, and that by law the heads of all the Executive Departments are, *ex officio*, members of the Institute, and exercise the chief official powers over its concerns, it seems reasonable, no less than constitutional, for that Government to assist in the expense of taking care of its own property.[81]

In the latter part of March 1844 a lengthy memorial was presented to Congress, praying for "the means of enlarging and giving additional efficiency to their patriotic efforts and purposes." In addition to presenting the problems of the Institute, it summarized the activity of the group from its beginning:

The National Institute is composed of private individuals, with no other bond of connection than *their common labors as trustees of certain property for the public and the Government* — a common feeling of interest in promoting scientific and useful information, and the bond of union bestowed upon them by Congress in their charter of incorporation. In effecting the designs of their association, they have established an extensive correspondence with influential and useful men,

[80] *Ibid.*, p. 332 (December 28, 1843).

[81] Adams, *Memoirs*, XI, pp. 458–59; *Bulletin*, III, pp. 336–37.

men of experience, of letters, and of distinguished scientific attainments, not only throughout the Union, but throughout the world. In every part of Europe, and of the American continent, in Asia, and in Africa, we find generous and enthusiastic friends and corresponding members; foreign Governments have evinced their interest by valuable contributions, and many of the most distinguished Institutions and Societies abroad are correspondents and contributors. An aggregate amount of munificence, zeal, learning, and adventitious advantage is thus possessed by the Institute, which has already yielded substantial results, and holds out assurances of the richest fruits. . . .

Through this wide-spread instrumentality, the Institute has labored to form an extensive library and museum, or collection of objects of natural history, a repertorium of facts and contributions to science, documents illustrating history in general, but in an emphatic manner that of our own continent, and specimens of the fine arts, of mechanical ingenuity, valuable productions of the vegetable kingdom, and materials illustrating the moral and social condition of nations generally, but, in a more especial manner, of our own. From every quarter of the globe valuable and various contributions have been transmitted to us. The gallant officers of our army and navy; the diplomatic and consular representatives of the Government abroad, the men of learning and science every where, have entered with the most praiseworthy zeal in the cause, and vied with each other in the number and value of their contributions. . . .

In addition to these materials . . . the convenience of the Government has made it the depository and guardian of numerous articles of its own property, which are thus exhibited to the public eye without trouble to the ordinary officers in the various Departments, and without the consequent abstraction of their time from more peculiar and appropriate duties. . . .

The articles arising from these, and from various other sources which it would be tedious to enumerate, already in the custody of the Institute, are of great value and they are increasing with rapidity and accumulating to an indefinite extent. . . .

For the Institute has depended upon the Government heretofore, and must continue to rely on it, not only for many of the most valuable articles in its possession, but for a place to deposit them, and a place for their meetings, as well as for some of the means to defray the incidental expenses of opening, putting up, and preserving their collections. In short, all the property belongs to the Government. The guardians of it, under the charter, are chiefly the officers of the Government. The custody of such property was heretofore at the public expense. And that such sums should still be expended by Congress as would pay for the freight and other expenditures connected with it, would be the exercise of no other power than such as has been exercised by the Government every year since its organization.

The individuals who compose the Institute . . . have thus created, enlarged, and rendered practically useful, the property of the Government, and of the nation. . . .

All the Institute asks of Congress, then, is an appropriation of a sum sufficient

to discharge the arrears of expenses heretofore incurred, and due by the Institute. An annual appropriation for the necessary purposes of the Association, and the continuance of the indulgence hitherto granted, of the use of convenient rooms for preserving the property, and holding the ordinary meetings.[62]

In introducing the measure Senator Woodbury added further that the Institute "asked nothing for private purposes or private emolument, being entirely willing to dedicate its labors to the cause of the government and the public; and asking only some aid to defray the actual expenses attendant on the discharge of such duties as it performed on public account."

Favorable report of the Library Committee of the Senate to which the subject was referred was presented by Rufus Choate of Massachusetts on June 7,[63] and nearly a week later (June 13) can be noted as the 34th Amendment to the Civil and Diplomatic Appropriations Bill, a provision asking for $4000 for the National Institute, "for defraying the expenses incurred . . . in taking care of the public property and collections in its charge." Senator Benjamin Tappan of Ohio thought that the "government should have nothing to do with property of the National Institute; and no appropriation should be made to purchase its trash. He would not give $200 for the whole collection." In refutation Woodbury read the committee report which "showed the immense extent and value of this collection, consisting of many thousand articles, a large library [the Secretary's report in January 1843 had shown nearly 2000 books and pamphlets], and numerous boxes yet unopened," and Choate testified to the "high qualities of the gentleman who made the report [George P. Marsh of Vermont], and to the value and importance of the collection." Senator William Allen of Ohio "denounced this new creation of a political department, as one called up under the pretense of keeping the skins of beasts and collections of bugs; and characterized it as part and parcel of the system of extravagance and squandering of the public money for political effect which was tending so rapidly to centralization and consolidation of power in the hands of the central government." Senator James Buchanan of Pennsylvania "did not want to see the government purchasing these curiosities; there was no necessity, for, at the expiration of the charter of the institute, they would all belong to the government. He pointed out one of the most valuable colleges in the United States in which the services of three able professors are considered well paid for at

[62] Dated March 18, 1844. *Bulletin*, III, pp. 383–86; *Congressional Globe*, 28th Cong. 1st sess., pp. 409–10.

[63] *Senate Document 368*, 28th Cong., 1st sess.; *Congressional Globe*, 28th Cong., 1st sess., p. 649.

$1,500 each, amounting to only $4,500, and here were $4,000 proposed to be given for this collection! Let the institute keep and take care of its own property." Senator John M. Berrien of Georgia, however, "regarded the institute as essential to a nation in an advanced stage of civilization, and most important in preserving that intercourse of nations which tended to harmonize and enlighten the human family." The true intent of the measure was pointed out and the amendment finally adopted, 30-14.[64]

Meanwhile, the Institute had been proceeding to carry out the suggestion of President Poinsett, "to make ourselves acquainted with all useful and important discoveries in science . . . especially all such discoveries as may be applicable to the arts and useful to our manufactures and mechanics."[65] Since one of the best means of doing this was by maintaining contact with the various scientific societies of the country, in August 1841, it was

Resolved, That the National Institution regards with deep interest the recent formation of the Association of American Geologists, the efforts made, and the plans prepared by it, for the advancement and development of American Geology.

Resolved, That the National Institution invite the Association of American Geologists to make the City of Washington the place of one of its annual meetings.[66]

The committee which the next year had recommended measures for diffusing the benefits of the Institute to the nation at large had suggested as an important means of achieving this end that

A meeting of the learned men of our country, distinguished for their attainments in the different sciences, particularly in these termed physical, should be held annually at the seat of the General Government, at some early period of the session of Congress, under the auspices of the Institute, to communicate the results of their inquiries, to compare their observations, and to promote the general interests of science. It has seemed to the committee that this Institute affords an opportunity, which ought not to be neglected, of concentrating the genius and learning of our country at a common centre, from which the beams of intelligence will radiate to gladden and bless the land.

They recommend that, in addition to the powers already conferred, the committee be authorized to make arrangements for such a meeting, at a day as early as may be found practicable, and to invite the attendance of those who desire to participate in its proceedings.[67]

Circulars incorporating the resolutions arising from the committee report were issued in October 1842, and February 1843. The first of

[64] *Congressional Globe*, 28th Cong., 1st sess., p. 674.

[65] *Bulletin*, II, p. 69 (March 8, 1841).

[66] *Ibid.*, p. 100 (August 9, 1841).

[67] *Ibid.*, III, p. 335 (August 8, 1842). For further details of the committee report, see above, pp. 274–75.

these was sent out with the object of obtaining "preliminary views and information in regard to the time and mode for convening the first meeting, and the probability of success in the effort." In the second it was made known that, drawing on responses to the first, the committee had decided upon the month of April 1844, as "the period which will best suit the convenience of all," and took "this occasion and mode of respectfully inviting to Washington in the name of the National Institute the members of the American Philosophical Society, the oldest scientific institution of our country, the members of the Association of American Geologists and Naturalists, and the members of all other scientific and learned societies in the United States; the honorary and corresponding members and patrons of the Institute, and all others engaged and concerned in the 'increase and diffusion of knowledge among men.' "[68]

Previous to the meeting delegates from numerous groups signified their intention to attend — Georgia Historical Society, New York Lyceum of Natural History, Antiquarian Society, Columbian College, historical societies of Maryland, New York, Massachusetts, and Connecticut. The third circular, March 5, 1844, urged:

> If they who shall honor the meeting with their presence, could bring along with them pledges of good will from their fellow citizens and friends, offerings such as these would give interest and zest to future exhibitions, in the success of which every liberal donor would have a share. . . . One of the ends of the contemplated meeting may be to suggest the most expedient and appropriate course for the diffusion of knowledge by the National Institute . . .[69]

In spite of the failure of the House to adjourn, as was resolved by Ingersoll, to allow time for its members to attend the opening of the anniversary meeting of the National Institute on March 30 (which was addressed "by A. D. Bache, on the History of Science in Europe and America"[70]), many congressmen were on hand April 1 to welcome the visiting "Friends of Science." The Hon. Robert J. Walker, Senator from Mississippi, reassured them that the Institute "is not designed to impede the progress or impair the usefulness of any present or future scientific institutions or societies in any of the States, but would desire to establish between them and this Institute the most cordial relations, together with reciprocal aid and encouragement." He called for "the support of all, with a view to the general diffusion of knowledge, and advancement of American science."[71]

[68] *Ibid.*, pp. 420–22.
[69] *Ibid.*, pp. 424–25.
[70] Adams, *Memoirs*, XI, p. 546; XII, p. 5.
[71] *Introductory Address* (Washington, 1845), p. 1.

More optimistic members, perhaps, drew some hope for favorable action upon their memorial, at that time awaiting congressional action, from the opening address of President Tyler to the group:

> I hail this assemblage, as opening a bright and auspicious vista. . . . It seemed only necessary for them [National Institute members] to develop fully their plan, in order to secure for it the public favor. . . . It would be vain for a single, unaided individual, . . . by his own private means, to erect a rival monument to those which tower aloft . . . Philosophy may conceive, and art may invent; but the conceptions of the one, and the inventions of the other, may wholly be unknown, for the want of a means to convey the knowledge of their existence to mankind. Hence, the great importance of philosophical and scientific associations, whose chief end it is to collect, arrange, and disseminate the productions of mind and art. The want of such an association in the United States for the whole Union became manifest, and out of that conviction has arisen the National Institute. Congress, impressed with its importance, has given it a corporate existence; and the attention of the world, as is proven by the voluntary contributions which distant countries have already made to its collections, has been turned to it. That it has interested in its behalf the men of science of the United States, actively and zealously, this assemblage fully demonstrates. The Government, itself, I doubt not, so far as it is authorized by the instrument of its own creation, will continue to it a fostering care. Where can it find a safer depository for the fruits of its expeditions, fitted out to explore distant and unknown regions, than the National Institute? What can it better do for the "increase and diffusion of knowledge among men," than by patronizing and sustaining this magnificent undertaking?[72]

Likewise there was encouragement from Adams, who believed the Institute "eminently deserving of the fostering care and liberal patronage of the Congress of the United States, and could anticipate no happier close to my public life than to contribute, by my voice and by my vote, to record the sanction of the nation's munificence to sustain the National Institute devoted to the cause of science," and from Richard Rush, who encouraged: "Let it [Smithsonian fund] be engrafted upon the National Institute. This is no original proposition of mine. It has been a well-considered opinion. It . . . has met the concurrence of so many judgments entitled to respect as now to form what may almost be called an enlightened public opinion. . . . I would say, then, clothe this institute with it: it is now suffering for want of funds — the only want that it knows. . . ."[73]

Before the close of the meeting some 40 friends of science annexed a memorial to the one then in Congress:

[72] *Bulletin*, III, pp. 437–38.

[73] *Ibid.*, pp. 454, 458.

We cordially unite with the resident members of the Institute in asking an appropriation in its behalf from Congress. Our only fear is that in thus requesting aid for the keeping of what in fact is the property of the Government, we may be considered as asking a boon far below that which the country calls for, and that we ought to urge upon the National Legislature a liberal and plentious endowment for a National Institute; and we are only withheld from doing so by considerations growing out of the present financial condition of the Government. But that which we ask is so entirely within the means of Congress, and the urgency of its application to preserve what has been accumulated, with so much labor and expense, is so great, that we cannot but hope that enlightened and intelligent members of Congress will distinguish the present session by the necessary appropriation of funds to an object so truly national and so truly republican.[74]

But even this did not help; the decline of the Institute proceeded very rapidly after the failure of this meeting to produce tangible results. From the chairman's report on the April meeting it is revealed that the society obtained there subscription from various individuals to defray the expenses of the meetings and of the publication of the proceedings.[75] The vice president and secretary in a notice of the published proceedings of the April meeting, after proffering a number of reasons for their failure to publish in extenso, concluded with: "Another consideration of an imperative nature compelled the Institute to adopt this course, viz: the want of funds sufficient to enable it to publish the proceedings more at large. This is the chief reason why the whole work, (the third bulletin and the proceedings of April), has been so condensed as to deprive it of much of that attractiveness and fulness which the copious and interesting materials on hand would have imparted to it."[76]

It was resolved:

That inasmuch as Congress has adjourned without making any provision for the Institute, it is expedient that new exertions should be made to raise money throughout the United States to sustain it and to promote its objects. And that, with this in view, the Vice President and constitutional officers be authorized to send an agent or agents to such places as they may select for the purpose of collecting money to defray the expenses of the publications and for the general purposes of the Institute, to be expended under the Board of Management.[77]

Woodbury's annual address to the Institute, "of about two hours' duration, delivered with great rapidity, replete with various and minute details of modern and especially American improvements in the arts and sciences, physical, moral, political, and intellectual, tinged throughout with the wormwood of Democracy, like ocean brine oiled down to freshen

[74] *Ibid.*, pp. 386–87.
[75] *Ibid.*, pp. 463.
[76] *Ibid.*, pp. 419.
[77] *Ibid.*, p. 464 (July 12, 1844).

it, with a mawkish tang of the salt remaining in the taste,"[78] at the opening of the next year urged the Institute members and followers of science in America to increased action:

> Not content to be mere copyists or imitators, let us strive for a due share of originality, freshness, boldness, independence; seek to make new discoveries in every thing useful; force from nature more of her secrets; increase as well as diffuse knowledge; and excite and draw out all our latent or peculiar advantages every thing new in our country, or its productions or social position, and thus add our full share to the great truths and common treasures of the civilized world. . . . I think it may be safely said, that we hope to advance still further and faster, till we render the Institute, in many respects, worthy its unrivalled position, and the growing country to which it belongs. In fine, as our materials multiply, and needy and enterprising genius resorts to them for aid, and the Capitol becomes more crowded for business or amusement, all whether in private or public life, will also have in it a place of resort in their leisure, more instructive than gaming or the bottle, or too much of the frivolities of fashion; and the influence of this for good, like those of the invisible dews, must be more and more felt through the whole republic and to the remotest posterity.[79]

"He made out on the whole, a very good case, and closed with a liberal exhortation to Congress to foster science within their constitutional limitations, and to interweave together the capabilities of the National Institute and the Smithsonian Fund."[80]

By the time of the annual meeting for election of officers, January 29, Poinsett, perhaps feeling that their cause was lost, suggested the "propriety of electing a presiding officer in his stead, as, for various reasons, he felt himself unable to render such services to the Institute as he could wish, and which such an officer, properly selected, should have it in his power to render."[81] Woodbury was chosen to replace him.

Discouraged but not disconsolate, the Institute presented to the first session of the 29th Congress another memorial, calling attention to "what they most sincerely deplore — the increasing difficulties of the Institute."

> It is becoming entirely impracticable, by mere private contributions and taxes, to pay the large incidental expenses attendant on the collection and preservation of so much valuable property connected with the advancement of science, literature, and the arts. The Institute asks and has asked nothing for the private emolument of its members; it merely seeks means to secure the property coming into its custody from time to time, so that it may not be injured or lost, and so that it may be exhibited and used by the public, as it is dedicated to the public, and the title to it is intended to be in the Government.

[78] Adams, *Memoirs*, XII, p. 146 (January 15, 1845).
[79] *Annual Address* (Washington, 1845), pp. 24, 34–35.
[80] Adams, *Memoirs*, XII, p. 174.
[81] *Bulletin*, III, p. 376.

For want of pecuniary means, all our collections, whether in possession or increasing by new additions weekly, are in jeopardy; and unless Congress interfere to save what is so public in its character, and so peculiarly under its guardianship as is the encouragement of matters of this kind within this District, subject to its exclusive legislation, the prospect is that the operations of the Institute must of necessity cease, and the property be abandoned.[82]

But this, too, went unheeded, and little hope remained for the success of the Institute. Passage by the Senate of a measure establishing a Smithsonian Institution from whose management the National Institute as a body was almost completely excluded was merely further evidence of its impending fate.[83]

Unhappy anomaly! It [National Institute] has to pay the penalty of early and triumphant success! By its voluntary zeal — by its untiring and well-directed industry in the fields of science, literature, and the arts, it wins a name throughout the world. . . . Numerous testimonials of co-operation and sympathy, in the form of instructive correspondence, and in other forms substantial and gratifying, pour in upon it from all quarters, until already the heads of great nations deem it worthy of their marked attention and favor; yet the very donations to subserve the ends of its establishment, and which its own honorable and unaided exertions have so speedily earned, cannot be obtained through its want of even moderate funds.

And can it be that Congress will remain insensible to its wants — suffer it to languish, even to perish, under its extraordinary merits? Let us hope otherwise. The spirit of the age stands up for such an institution.[84]

Could be — and was! Embarrassment and disheartenment reached their peak when the organization found itself hard-pressed to pay shipping and depository costs on even royal donations: from Louis Philippe, King of the French, "a copy, on fine paper, of the great work of the expedition to Egypt," and from Her Majesty's Government "copies of the maps, sections, and memoirs of the geological survey of Great Britain and Ireland."[85] On November 25, 1846, the Institute reported that more than 1000 "boxes, barrels, trunks, &c., &c., . . . remain on hands unopened — the liberal contributions of members at home and abroad — of governments, of learned and scientific societies and of munificent friends and patrons in every part of the world. For the preservation, reception, and

[82] Dated December 16, 1845. *Ibid.*, IV, p. 503.

[83] For Senate discussion in which the National Institute figured prominently see later (Smithsonian Institution).

[84] Richard Rush to the Corresponding Secretary, July 18, 1846, *Bulletin*, IV, pp. 530–31.

[85] *Bulletin*, IV, p. 512. The fourth *Bulletin* contains an abstract of communications and presents to the Institute, an extensive list of donations and contributions for the cabinet, a copy of the memorial and accompanying documents presented to Congress, and a number of descriptive letters to the society, published in full. If meetings were held during the period February 1845 to November 1846, no mention is made of them.

display of these, the Institute has neither funds, nor a suitable depository. The usual meetings of the members have been suspended for a considerable period."[86]

As has been stated previously, early in its life the Institute, through the efforts of Poinsett (who effected the consent of the Navy Department, under whose command the expedition had been carried out), had been made the custodian of "about one hundred and fifty boxes, the results as far as have been received of the exploring squadron's exertions, containing a variety of interesting objects of natural history."[87] These were first shipped to Philadelphia, but provision and Congressional appropriation were soon made for "transporting to the city of Washington and of arranging the collections made by the exploring expedition." A curator was elected by the Institute, suitable skilled help was employed, and in April 1841 the collections and library of the Institution were installed in the Patent Office building where they remained until removed to the Smithsonian in 1857. Various members of the Wilkes expedition were later added to the staff, and for more than a year the Institute held unquestioned dominion over the materials. On August 4, 1842, however, Congress appropriated $20,000 for the transportation, preservation, and arrangement of the collections, and some three weeks later passed an act providing for the publication, under the supervision of the Joint Library Committee, of an account of the discovery made by the expedition; and also:

> That until other provisions be made by law for the safe keeping and arrangement of such objects of natural history as may be in the possession of Government, the same shall be deposited and arranged in the upper room of the Patent Office, under the care of such persons as may be appointed by the Joint Committee of the Library.

The effect of these acts was to shift control of the government collections from the Navy Department to Congress, but the Institute still believed itself responsible in an advisory way for the disbursement of the appropriation. When its committee became aware that their advice had not been sought for expeditions in progress, a protest was filed with Poinsett who immediately took steps through Senator Walker to secure special legislation providing relief from this embarrassing situation. Walker's bill, accompanied by a document, unfortunately headed "Remarks submitted by Mr. Markoe and Col. Abert to the Hon. Mr. Walker," rather than by some title indicating that it emanated from the

[86] *Ibid.*, Introduction.

[87] *Bulletin*, I, p. 48.

Institute, was referred to the Library Committee. In presenting the committee report, February 28, 1843, Senator Tappan ridiculed the idea of placing the results of a great Government expedition in the hands of a "private corporation," and advised members of the Institute to "disabuse themselves of the delusion" that regular appropriations would ever be made by the Government for their benefit. "The case presents two officers of the Government, one at the head of a bureau, the other a clerk in one of the public offices, who ask as a matter of right, that they should have the supervision of a very important literary and scientific work, the publication of which, Congress has thought proper to intrust to one of its regular committees." Markoe and Abert were duly indignant, responsibility was retained in the hands of the Library Committee, and the prestige and foundation of the Institute were severely shaken.[88]

Further conflicts of authority followed in rapid succession. In July a new situation was precipitated by the resignation of the curator of collections. The consequent appointment by the Library Committee of a successor (Henry L. Ellsworth, the Commissioner of Patents), and, in August, the placing of Captain Wilkes in special charge of the gatherings of the exploring expedition were apparently unknown except through rumor to officers of the Institute. Inquiry by Abert of Wilkes as to his future policy in relation to the possessions of the Institute housed with the Government collections brought forth the information:

> I can not acknowledge any right in a committee of the Nat. Inst. to call upon me for any explanation whatever relative to my official duties or actions, particularly when such a call is based upon (as you inform me) painful reports of which I have no knowledge and little regard, and can not help expressing my astonishment that any members of a scientific society should have given credence to them, to have authorized an action on the part of one of their committees before they have ascertained that they were true.

In answer to Abert's specific questions, Wilkes stated that the belongings of the Institute had not "been disturbed further than became necessary in the arrangements, and an equal care has been bestowed upon them that others have received," and, further, that persons employed and paid by the Government must devote their time and energies exclusively to the property of the Government. " . . . I will go further and assure you that there is every disposition on the part of the Library Com'ee

[88] For details see *Congressional Globe*, 27th Cong., 3rd sess., p. 363; *Senate Document, 233*, 27th Cong., 3rd sess.; *Reply of Col. Abert and Mr. Markoe to the Hon. Mr. Tappan, of the United States Senate* (Washington, 1843); Goode, "Genesis," pp. 312–14, 369–73. Col. James W. Abert was associated for many years with the Bureau of Topographical Engineers and headed a number of surveys and studies.

of Congress and myself to have things belonging to the Nat. Inst. that are now in the hall taken care of, and due notice will be given to the Institute should the little room they occupy be required for collection of the exp'g expd., which it is now confidently believed will entirely fill the hall when they are fully arranged."[89]

Abert's replying appeal went unheeded:

> All the labor, all the contributions, from whatever branch of service, civil, diplomatic, navy, military, are for the scientific reputation of our common country, and a hearty union of all is necessary to form a good collection. Deprive it of all the charm of being national, deprive it of that halo of interest with which the name national has already covered it, and it will soon cease to increase, will be no longer worthy of a thought, and will rapidly degenerate to the insignificance of a local collection. . . . We [founders of the National Institute] digested a scheme in which we thought all persons could unite, because it was national; which all parties could befriend, because it was national; to which all conditions and branches of service could contribute, because it was national; to which the Government might extend its patronizing hand, because it was national, because it aided and elevated the national character, and because it would furnish a broad platform of national feeling upon which all parties, all sects, all conditions of life could, on principles cherished by all, meet and unite in erecting a temple to national fame.[90]

Soon afterwards began another conflict, this one with H. L. Ellsworth, the Commissioner of Patents and official guardian of both a portion of the collections and of the hall in which all the materials were housed. Ellsworth's plan, apparently, was to belittle the work of the Institute and its collections, and to lay claim to the official possession of certain of the important collections. Even as Wilkes, while affirming his own authority he reassured the Institute: "And while the Commissioner of Patents has the sole custody of the building the Institute may be assured that the articles deposited by them will receive the same care and watchfulness as those belonging to the Patent Office or those received from the Government." He went on to say, however, "The time has now arrived when the wants of the Patent Office imperiously require more of the large hall, and it remains for the National Legislature to determine who shall be accommodated when there is not room for all." The choice was obvious.

Statements were made in public minimizing the value of the collections of the Institute: apparently one made certain charges in connection with

[89] Wilkes to Abert, September 16, 1843, in Goode, "Genesis," pp. 314–15. Goode presents in full the Wilkes-Abert correspondence, and also the Abert-Ellsworth, pp. 318–22.

[90] Abert to Wilkes, September 1843, *ibid.*, p. 317.

the portraits in possession of the Institute, attempting in this manner to show the organization "unworthy of the patronage of the Government." This is said to have occurred during the meeting of the friends of science with the intention of counteracting any effect which the assemblage might produce upon Congress.[91]

Failure to obtain congressional grants of money, passage in 1846 of the Hough bill creating a distinct and completely independent Smithsonian Institution, failure of members to pay dues,[92] all rendered impossible the care necessitated by the deluge of museum materials with which the Institute was flooded. Interest and activities of the society dwindled. By 1848 its cabinet was almost the only evidence of its existence. In this year, however, there seems to have begun a partially successful attempt to revive the organization. President Taylor became its patron. Cabinet members were friendly, control of the hall in the Patent Office was regained, the constitution revised, and plans were made to publish *Transactions*.[93] The Institute was requested by the Secretary of State in 1850 to appoint a committee to pass upon articles proposed to be sent to the London World's Fair the next year. Its paying members numbered only 27, with an annual income of less than $150. Of these members, one, at least, is known to have maintained his membership for purely unscientific reasons: Joseph Henry, first Secretary of the Smithsonian Institution, informed the society — "I shall continue to be a member and hold myself responsible for my portion of the debt unavoidably incurred by the executive committee. It is my opinion that under its present organization the Institution can not advance the cause of American science, and that it may be productive of much evil."[94]

In 1857 much of the material over which the National Institute claimed guardianship was removed to the Smithsonian Institution, but, since the society still hoped for congressional aid, many objects remained directly under its control. As had occurred in the more glorious phase of the organization, however, its memorials were denied. The residue of the collection was stored in an unguarded passageway in the Patent Office, where much of it was either destroyed or stolen. It is said that a Commissioner of Patents in charge between 1850 and 1860 was annoyed by the fossil vertebrates in one of the rooms and without consulting anyone sent them to a bone mill in Georgetown where they were transformed into

[91] *Ibid.*, p. 322.

[92] A list of active members in arrears for dues up to December 12, 1843, included nearly one-half of the membership, and an amount of $1300.

[93] These plans were never carried out.

[94] To Peter Force, January 5, 1852, in Goode, "Genesis," p. 330, note.

commercial fertilizer.[95] In 1861, shortly before the expiration of the Institute's charter, the remains of the collection were delivered to the Smithsonian Institution.

Despite the failure of the Institute to maintain its organization, its efforts can in no sense be regarded as in vain, for undeniably the Smithsonian Institution builded upon its rocks. "Indeed the organization of the Smithsonian Institution finally adopted bears marked resemblance to that of the National Institute both as regards the cast of officers and the objects of the establishment."[96] "The influence of the National Institute upon the history of science in the United States, and particularly in educating public opinion and the judgment of Congress to an application of the proper means of disposing of the Smithsonian legacy, can not well be overestimated. If the Smithsonian had been organized before the National Institute had exerted its influences, it would have been a school, an observatory, or an agricultural experiment station. In 1846, however, the country was prepared to expect it to be a general agency for the advancement of scientific interests of all kinds — as catholic, as unselfish, as universal as the National Institute."[97]

[95] Goode, "Genesis," p. 331, note.

[96] Henry C. Bolton, "The Smithsonian Institution. Its Origin, Growth, and Activities," Appleton's *Popular Science Monthly*, XLVIII (1896), p. 297.

[97] Goode, "Genesis," p. 297.

(*To be continued*)

Autobiography in Medicine

OR

The Doctor in Search of Himself

BEATE CASPARI-ROSEN AND GEORGE ROSEN*

Ich bin schon alt, es mahnt der Zeiten Lauf
Mich oft an längst geschehene Geschichten,
Und die erzähl' ich, horcht auch niemand drauf.
— Chamisso

IN considering the subject of medical autobiography, there naturally arise a number of questions. What is autobiography? Why do so many doctors write autobiographies? And, last but not least, why do we read them?

The autobiography is the commonest form of the personal document which has been defined "as any self-revealing record that intentionally or unintentionally yields information regarding the structure, dynamics, and functioning of the author's mental life. It may record the participant's view of experiences in which he has been involved; it may devote itself deliberately to self-scrutiny and self-description; or it may be only incidentally or unwittingly self-revealing."[1] The purpose of autobiography, then, is to depict at successive stages in the development of an individual the integration of experiences and traits, so that finally there will emerge the structure and significance of the life as a whole. Clearly, the writing of reminiscences is a manifestation of an intensely self-conscious individualism.

So numerous are autobiographies today that one tends to forget that the annual torrent of backward glances, recollections, and reminiscences is a phenomenon of recent origin. Interest in the mental history of the individual is a characteristic modern development, and has become so integral an element in the thought of our time that one may forget how rare it was in the past. The Platonic dialogues, for instance, contain an extensive account of the life and thought of Socrates, but we look in vain to this source

* Editors of *Ciba Symposia* and the *Journal*, respectively. This paper was presented before the New York Society for Medical History, December 6, 1945.

[1] Gordon W. Allport, *The Use of Personal Documents in Psychological Science* (New York; Social Science Research Council, 1942).

for an intelligible account of his mental development. Plutarch has given us a gallery of portraits of the great generals and statesmen of Greece and Rome, but both he and his Roman imitator, Cornelius Nepos, are interested only in presenting political history from a new viewpoint, that of the individual participants. In the *Meditations* of Marcus Aurelius we have the record of a self-conscious individual, but this unique mental history bore no fruit. The same may be said of the *Vision* of Lucian as well as of that other great autobiography of antiquity, the *Confessions* of St. Augustine. But while self-conscious individualism was rare in the classical world, the impact of rediscovered classical thought upon the world of the Renaissance was an important factor in the release of a new sense of personality. It was the movement of Humanism that foreshadowed the rise of autobiography.

The first specimens of autobiographical writing in the Renaissance are three almost contemporary works — the *Autobiography* of Benvenuto Cellini, the *Essays* of Michel de Montaigne, and the *De Vita Propria*[2] of Girolamo Cardano. It is worthy of note that among these first autobiographies to appear during the modern period there is represented a medical autobiography, the self-portrait of the physician, Cardano. It is indeed appropriate that the first full-dress medical autobiography should be that of Girolamo Cardano, for in the pitiless self-scrutiny of this Renaissance doctor are to be found many, if not all, the elements that characterize autobiography in general, and medical autobiography in particular.

Cardano was one of the strangest figures of the 16th century, in the first year of which he was born. Well-known is Boerhaave's remark on Cardano that: "No one was wiser, when he was wise; nobody was more foolish, when he erred." Hegel described him strikingly as "a world famous individual, in whom the dissolution and ferment of his time are manifested in a most extreme form."[3] Goethe likewise regarded him as a typical representative of Renaissance individualism, and expressed the following judgment: "Cardanus everywhere regards science in relation to himself, his personality, and his life-history, with the result that his works are characterized by a naturalness and vitality which attracts and refreshes, and stimulates us to activity. He is not a doctor in a long robe who imparts instruction to us *ex cathedra*, but rather a man who goes about, observes and is astonished by what he sees, experiences pain and joy, and passionately thrusts upon us an account of all this."[4]

[2] First published by Gabriel Naudé at Paris in 1643. We have used the Amsterdam edition of 1654.

[3] and [4] Karl Joël, *Wandlungen der Weltanschauung. Eine Philosophiegeschichte als Geschichtsphilosophie* (Tübingen, 1928), I, pp. 320–22.

As a rule, autobiographical writing seems to be preoccupied with *conflict*, with what have been called the "personality-making" situations of life. This characteristic feature reflects the origin of autobiography, for it is in varying degree the product of some crisis situation, short and intense, or protracted and cumulative in its effects, through which the writer has passed. Browning wrote:

> 'Tis the fall of its frontage permits you feast
> On the inside arrangement you praise or blame.

Every autobiography in some way results from the collapse of a frontage in response to personal experience, for the impression of such experience creates a need for sympathy, self-justification, appreciation, or communication.

This need, in the case of Cardano, sprang from his illegitimate birth and the many humiliations which resulted from it, from the bigotry of professional rivals and a lively sense of his own achievement and merit, from the execution of one son for murder and the complete moral degeneracy of another, and from imprisonment, banishment, and finally dependence on a papal pension. In his book he classifies all the attributes of man and then describes his own peculiarities under each head, *Statura et Forma Corporis*, *Valetudo*, *Mores et Animi Vitium et Errores*, and so on. He describes himself, his virtues and vices, with the detailed objectivity of a scientist depicting a newly-discovered animal. He presents a regular inventory of his effects, physical, intellectual and moral, down to the most absurd details — the price of his inkstand, the shape of his pen-knife, and the number of his teeth. Indeed, one is reminded of a Sears-Roebuck catalogue! But all this must be seen as a manifestation of an intense desire to understand himself and his existence. "Begin with an individual," writes F. Scott Fitzgerald in one of his stories, "and before you know it you find that you have created a type. . . . " This remark characterizes with peculiar aptness the place in the field of medical autobiography of Cardano's encyclopedic self-inventory.

Like most other human activities, autobiographical writing is born of mixed motives. Some idea of why doctors write autobiographies may be obtained from statements by medical men who have done so. "Autobiographies," writes Edward Trudeau, "must of necessity run perilously near the fatal precipice of egoism, and too many of those I have read have reminded me of the plain old ladies, who so often tell us what belles they were in their youth, and what conquests they achieved.

"Then why write? First, perhaps, because many autobiographies are certainly of intense interest, instructive and inspiring to others, and because the experiences they describe are in a great measure known to the writer alone, and must perish with him; and because many of my good friends, whom I trust, tell me that the main facts of my life are such as to be of interest to others, and to prove inspiring and stimulating to younger men. In addition, I imagine another reason is that I am human, and that as a man nears the end of the earthly journey, and the 'evening comes and the shadows lengthen' and 'the work is done'; when there is no longer any future to look forward to in this world and much of the joy of life has disappeared from the present, he naturally turns his face not unwillingly to the past, and is not at all averse to living over again for others some of the days of sunshine and shadow, of pleasure and pain, and of strenuous activity through which he has passed."[5]

To this may be added the comment of Alfred Grotjahn, the German hygienist, that "anyone who has gone through life as a curmudgeon and has irritated and embarrassed his professional colleagues and political friends cannot very well ask that others should praise him. Therefore he must do it himself, but he should do it with moderation." Grotjahn adds a bit of advice for the doctor who may want to write an autobiography. "In reminiscences," he says, "not everything that is true need be told, but everything that is told must be true."[6]

We cannot here go into the unconscious motivation of medical autobiographies. Any attempt to ascertain the operation of such factors as compulsive neuroticism, latent aggression, or narcissism in the production of such documents would require a detailed analysis of the individuals concerned. From the comments previously quoted, however, we may distinguish some of the motives that lead doctors to write their life stories. It is true that these motives express primarily conscious intentions, and for this reason should not be regarded as exhaustive. Furthermore, in any concrete case that may be cited as an example, it should be understood that not one, but several motives are operating.

It is probable that no medical autobiography is entirely free from self-justification, yet even though the story cannot be taken at its face value it discloses important facets of the author's character. Cardano, for instance, outdoes himself to prove that he is more sinned against than sinning, but

[5] Edward L. Trudeau, *An Autobiography* (New York: Doubleday Page & Co., 1916), p. 7.

[6] Alfred Grotjahn, *Erlebtes und Erstrebtes. Erinnerungen eines sozialistischen Arztes* (Berlin, 1932), introduction.

when we study him and his self-defense we find that while he undoubtedly had powers of self-examination, his imagination frequently got the better of his judgment. Or take this defense of himself by Paracelsus:

To excuse his Strange Manner and Wrathful Ways:

Not enough to attack me in various articles, but I am said to be a strange fellow with an uncivil answer, I do not wash up to the satisfaction of everyone, I do not answer everyone's contention in humility. This they consider and deem a great vice in me. I myself, however, deem it a great virtue and would not that it were otherwise than it is. I like my ways well enough. In order, however, that I may justify myself as to how my strange manner is to be understood, pay heed: I am by nature not subtly spun, neither is it usual in my country to attain anything by spinning silk. Neither are we raised on figs, nor on mead, nor on wheaten bread, but on cheese, milk and oatcakes. This cannot make subtle fellows; besides what one received in youth sticks to one all one's days. The same is almost coarse to the subtle, the cat-clean, the superfine. For those who are brought up in soft raiment and in the women's apartments, and we who grow up among fir-cones do not understand one another well. Therefore must the coarse be judged coarse, though the same think himself utterly subtle and charming. Thus it is with me too: what I think is silk, the others call ticking and coarse cloth.

But pay heed further how I justify myself in this accusation that I give a rough answer. The other physicians know little of the arts; they resort to friendly, pleasing, charming words; they advise people with breeding and fine words; they set forth all things at length, delightfully, with distinct differentiations, and say: Come again soon, my dear sir; my dear wife, go and accompany the gentleman, etc. I say thus: "What wilt thou? I have no time now; it is not so urgent." Now I have upset the applecart! They have made such fools of the patients that they are completely of the belief that a friendly, affectionate manner, ceremony, ingratiating ways, much ado, constitute art and medicine. They call him "young sir" who only comes from the shopkeeper's; they call another "Sir, wise Sir" who is a cobbler and a dullard, where I say "Thou"; but with this I throw away my resources. My intention is to gain nothing with my tongue, but only with works. As they, however, are not of this opinion, they can well say in their way that I am a strange, queer-headed fellow, that I give little good advice. I do not believe in feeding myself on friendly caresses. Wherefore I cannot use what befits me not, nor what I have not learned. For it is not necessary to use such flattery and to deal tenderly with every boor who is not fit to be carried in a dung-barrow. . . .

Thus I consider in this respect I am sufficiently defended. Still it happens that I have other strange ways, for instance, towards the sick, if they do not follow my prearranged injunctions. Anyone can judge that such strange ways are not unjustified, in order that medicine may be found true, the patient become well, and I may still remain without blame. A turtle-dove would grow angry with such lousy muddle-heads.[7]

[7] *Four Treatises of Paracelsus*, edited by Henry E. Sigerist (Baltimore: Johns Hopkins Press, 1941), pp. 33–35.

Clearly, despite the fact that this display of verbal fireworks is primarily a vigorous defense against the attacks made upon him, it gives us more of the essential spirit of Paracelsus, the man, than can be obtained from a dozen descriptions at second hand.

In many autobiographies one can trace an aesthetic motive. The author wants to reveal his personal experience in a delicate and pleasing manner. It is obvious that the artistic form and perfection of expression are intended by the author, as for instance, in the longer prose works of Hans Carossa which are frankly autobiographical. Here the aesthetic motivation is paramount and because of this we shall return later to discuss Carossa's stories of his own experiences.

Many medical autobiographies are created by the desire of the writer to take stock at a crossroad in life, frequently in advanced years. As Alfred Hoche expresses it: " . . . throughout my life I stood behind myself and looked over my shoulder, intent on not succumbing to the illusions and self-deceptions to which our flesh is heir. In these pages I wish to report some of the results of this self-scrutiny. . . . "[8]

Documents written with this incentive are likely to be sincere and mature. This aspect is most evident in that outstanding story of a civilized doctor, *As I Remember Him*, by Hans Zinsser.

Marie Bonaparte in an article "A defense of biography,"[9] points out the significance of personal documents in man's "battle against oblivion." In a similar vein, Sir Sidney Lee writes that "Biography exists to satisfy a natural instinct in man — the commemorative instinct — the universal desire to keep alive the memories of those who by character and exploits have distinguished themselves from the mass of mankind." This motive undoubtedly underlies numerous medical autobiographies. Frequently it is combined with another motivation. Doctors are often in a position to communicate important and characteristic information about events in which they played a rôle, or about people and happenings of which they were observers. Such documents may form important historical sources, as for instance von Baer's description of his discovery of the mammalian ovum or Helmholtz's account of his discovery of the ophthalmoscope. A related motive for the writing of autobiographies is the desire to communicate one's views to one's fellowmen and thus to influence the thought of others. We may gather these motives into one category of motivation, that of communication.

[8] Alfred E. Hoche, *Jahresringe, Innenansicht eines Menschenlebens* (München: J. F. Lehmanns Verlag, 1934), p. 8.

[9] Marie Bonaparte, "A Defense of Biography," *Int. J. Psycho-Anal.* 20 (1939) pp. 231–40.

Finally, we must mention a group of autobiographies that did not originate from any of these motives. In the five volumes of autobiographies that appeared under L. R. Grote's editorship between 1923 and 1926, he provided a unique collection of this type of material.[10] Designed primarily as a contribution to the history of contemporary medicine, the 32 chapters contained in these volumes show how autobiography is written upon request. In some cases the authors have written purely intellectual history reflecting the times in which they worked, and to a lesser degree their own mental development. In other cases considerable subjective material is included so that the intellectual history becomes genuinely personalized. But only in very few cases is a truly intimate document presented.

So far we have considered why medical autobiographies are written. We may now ask, Why are autobiographies so interesting to read? The reason, in part, may be that the reader semi-consciously reflects on his own life as he reads about another's, and his interest accordingly stems from his own self-love. But there is something more. The clue is given by Hans Zinsser when he says "that the education and thoughts of a reasonably intelligent average person might give a more accurate picture of these times than any biographical record of the distinguished and brilliant who might, because of their genius, belong to any age while representing none in particular."[11] A central tendency of the modern period has been more and more to place the daily life of people and the ordinary person into the center of our cultural stage. In autobiographical writing, the reader finds just this aspect — the human side of events and personalities. For instance, Virchow, the founder of cellular pathology, the pontiff of morbid anatomy, is to be found in every history of medicine, but how many know of Virchow the man? Let us read his description of how he proposed to his wife, for it gives us a glimpse of Virchow the man.

"Now as regards Rose," he writes, "it took a long time before we drew close to one another and even at the beginning of this year it would not have cost me any very great effort to tear myself away from her. Rose is very quiet when she does not have to speak, and so she chose rather to listen to my conversations with her mother, with her parents than to participate in them. But while listening she grew so familiar with my thoughts, in a sense she was thus educated by me, so that I do not know anyone who could understand me better than she. And I, I became fond of her, I knew

[10] L. R. Grote (editor), *Die Medizin der Gegenwart in Selbstdarstellungen* (Leipzig: Felix Meiner Verlag, 1923 ff).

[11] Hans Zinsser, *As I Remember Him. The Biography of R. S.* (Boston: Little, Brown and Company 1940), pp. 4–5.

not how or when; but one fine day I became aware that unexpectedly she had taken possession of my heart. On the same day, the last day of March, when my little Rose was confirmed I received the official notification of my dismissal.

"At that moment I considered it more honorable to hide my feelings for Rose. . . . Thus I remained reserved, even after my appointment (to Würzburg) had come, and yet I was unable to leave Berlin. And when I finally saw, how from day to day Rose was less able to hide her sadness, when I saw that she was suffering, and obviously on my account, I could no longer restrain myself. On Monday I came to say goodbye, but the afternoon already found us in each other's arms.

"Thus it happened. I could relate a great many details. . . . But so much for today. Later I will write to mother. . . . "[12]

In some cases the paramount aesthetic motivation and the literary skill of the self-biographer produce autobiographical writing of high literary value. An excellent instance is the German physician-poet, Hans Carossa. All the longer prose works of Carossa are autobiographical; his is the only work in German literature of a writer of the first rank who again and again spins enthralling stories from the matter of his own experience, and this even though the experience is at least outwardly that of thousands of other men. The explanation is that Carossa is first and foremost a symbolist, and that he is in his own person the symbol for the message he has to convey. This message is mainly concerned with development of mind and character; and since this process of formation is most vivid and most clearly defined in youth, it is not surprising that the story of his youth as recounted in *Kindheit und Jugend* is so fascinating. Details of his career may be filled in from a later book, *Führung und Geleit*, which is more the story of his development as a writer, in the light of his reading and personal contact with poets, painters, and men of culture; his experiences as an army doctor are related in *Rumänisches Tagebuch*.[13] Carossa's autobiographical writing is greatly influenced by contemporary painting and sculpture. It appears in the minute accuracy of his coloring, in the tints and perspectives of his landscapes and notations of nature, but he is helped by his knowledge of zoology, botany, and geology. His artistic leanings owe much to his early contact with Alfred Kubin, an artist and novelist

[12] Rudolf Virchow, *Briefe an seine Eltern, 1839 bis 1864* (Leipzig: Wilhelm Engelmann Verlag, 1907), pp. 189–90.

[13] Hans Carossa, *Eine Kindheit* (1922); *Verwandlungen einer Jugend* (1928); *Rumänisches Tagebuch* (1924); *Führung und Geleit* (1933).

of the "grotesque" school who continues the ghost and demon painting of Breughel and of the modern symbolist Odilon Rédon.

Autobiographies in German literature go back to the 15th century, but medical autobiography did not appear until the 16th in the autobiography of Felix Platter, a famous Swiss physician who became Rector of the University of Basel.[14] Carossa's great model, however, was not the work of a doctor but rather Goethe's *Dichtung und Wahrheit*.

So far we have considered the medical autobiography as personal document and as literature. But there is still another facet to the autobiographical writing of the doctor. There are certain phases of medical life which are bound to be common to all autobiographies. One or the other may be missing, but generally they are recurrent; it is the recurrence of these phases which constitutes the type. The most common motifs may be enumerated generally as follows: Family background and early years; student days, including medical studies; the practice of medicine; marriage and family life; activities as scholar and scientist; war experiences; and reflections on life, death, and other subjects. From the common factors indicated, it is clear that a study of medical autobiography over a period of several centuries with special attention to these topics would provide a unique type of medical history — an informal history of the medical profession. But it would be even more, for it would also give us a social history of the doctor.

Medical autobiography, however, has yet another value for the history of medicine. We know that a study of the depths of the human mind, and an acquaintance with the wide range of contradictory and confusing desires, conflicts, and strivings are necessary for an understanding of human behavior. And if this applies to the study of those whose language, habits, and daily life are identical with ours, how much more careful must we be in dealing with those who lived in entirely different times and surroundings, and are strangers to us. Here medical autobiography offers a bridge to the understanding of the past. Beyond most other men, the doctor is enabled to observe and to study the wellsprings of human thought and action; medical autobiography reflects the gamut of experience of the doctor's life. As an example take the autobiography of Johann Dietz, a German barber-surgeon of the late 17th century.[15] His autobiography, which

[14] Felix Platter, *Selbstbiographie* (ed. by H. Boos) (Leipzig, 1878); see also *Tagebuchblätter aus dem Jugendleben eines deutschen Arztes des 16. Jahrhunderts* (ed. by Horst Kohl) (Leipzig, 1913).

[15] *Meister Johann Dietz erzählt sein Leben . . .* (ed. by Dr. Ernst Consentius) (Ebenhausen bei München: Wilhelm Langewiesche-Brandt, 1915).

he wrote after reaching the age of 70, presents an excellent picture of middle-class life at this time. Since Dietz served with the Prussian army in Hungary and with Dutch whalers in the Arctic, his story presents many points of interest; but most important of all we see how life in the late 17th century looked to an average man. Furthermore, many medical men have participated in important historical events and are able to give eye-witness accounts of these occurrences; such descriptions are not easily forgotten. James Thacher's detailed observations on men and events during the War of Independence, especially under the adverse circumstances of hunger, fatigue, and cold, present a vivid commentary to more formal accounts. Similarly, the narrative by Heinrich von Roos, physician from Württemberg, who accompanied Napoleon's Grand Army, of his experiences during the Russian campaign gives a vivid and exciting account of the tragedy of the Grand Army. His eye-witness description of the burning of Moscow is unforgettable.[16]

What we have said about general history applies even more strongly to the history of medicine itself. What better commentary can we have on the German medicine of the 19th century than that series of autobiographies by men such as Stromeyer, Arlt, Kussmaul, Koelliker, von Leyden, von Bergmann, Naunyn, Heubner, and Trendelenburg? It is our opinion that the preponderance of German medical autobiography during the latter half of the 19th century reflects in part the consciousness of German physicians that they were members of a group that had achieved great things in medicine.

In short, we may say that alongside the formal history of medicine contained in textbooks and monographs, there exists an informal, unofficial history of medicine in the form of medical autobiography.

Our brief analysis has reviewed some of the whys and wherefores of medical autobiography, but no matter how the subject is approached it should never be forgotten that in the middle of excitement and events is a human being. For this reason the student of medical autobiography may find a useful guide in Emily Dickinson's admonition:

> Surgeons should be very careful
> When they wield the knife!
> For underneath their fine incision
> Lurks the culprit — Life!

[16] Heinrich von Roos, *Mit Napoleon in Russland* (1832), edited with an Introduction by Paul Holzhausen (Stuttgart: Robert Lutz Verlag, n. d.), pp. 96–98.

Students of Physic and Astrology

A SURVEY OF ASTROLOGICAL MEDICINE IN THE AGE OF SCIENCE

HUGH G. DICK[1]

ON November 15, 1928, Rudyard Kipling addressed the members of the Royal Society of Medicine in London on "Healing by the Stars: Astrology and Science."[2] In the course of his address, Kipling made an earnest plea for the restoration of astrological medicine. He argued that modern medicine rests on too narrow a foundation, that we of the 20th century ignore the relations between man and the universe as a whole, and thus in treating disease may often mistake secondary for primary causes. We blame micro-organisms for disease but forget the larger organism of the living universe. He therefore proposed a return to principles long since abandoned, and suggested that a physician should look not only at his patient but at the stars. In effect, he urged doctors not to rely on the microscope when they might sometimes be better served by the telescope. To support his argument, Kipling used as illustration the success of Nicholas Culpeper, the best known of astrological physicians in 17th-century England and the hero of one of the stories in *Rewards and Fairies*.

To the historian, however, Kipling's illustration raises more questions than it settles. We have as yet no over-all survey of what did happen to astrological medicine after 1600 among English-speaking people, though the English and Continental materials before about 1625 have been thoroughly explored by Sudhoff and others.[3] But the later period is one of great

[1] Assistant professor of English, University of California, Los Angeles. This paper is an expansion of a lecture first presented before The Walter Jarvis Barlow Society for the History of Medicine, Los Angeles, November 15, 1944.

[2] See Lloyd H. Chandler, *A Summary of the Work of Rudyard Kipling* (New York, 1930), p. 270; C. J. S. Thompson, *The Mystery and Romance of Astrology* (1929), pp. 279–80; and *The Times* (London) for Nov. 16, 1928. Unless otherwise stated, all books cited have been published in London.

[3] The classic account is Karl Sudhoff's "Iatromathematiker vornehmlich im 15. und 16. Jahrhundert," *Abhandlungen zur Geschichte der Medizin* II (Breslau, 1902). The later period, but mainly for France, has been handled in the various publications of Ernest Wickersheimer. For English readers the three outstanding surveys of the earlier period are Lynn Thorndike, *A History of Magic and Experimental Sciences*, V and VI (New York, 1941); Don Cameron Allen, *The Star-Crossed Renaissance* (Durham, North Carolina, 1941), especially the appendix "Some Astrological Physicians and Their Works," pp. 247–55; and Carroll Camden, Jr., "Elizabethan Astrological Medicine," *Annals of Medical History*, New Ser., II (1930), pp. 217–26. I have not seen H. Philips, *Medicine and Astrology* (1867), or Théophile Perrier, *La Médecine astrologique* (Lyon, 1905). Charles Arthur Mercier, *Astrology in Medicine* (1913), explains the

interest. By general consent, the 17th century is regarded as the first great age of science in the modern world. So far as England was concerned, it was the age of Bacon and Hobbes in philosophy, of William Gilbert in magnetism, of Napier in mathematics, of Boyle in physics and chemistry, of Newton in celestial mechanics, of Harvey and Sydenham in medicine. It was the age which saw the foundation of the Royal Society and the rise of scientific journals whereby information could be widely, swiftly, and accurately disseminated. It was pre-eminently the age in which the idea and the ideals of science began to come home to educated men everywhere. It was accordingly the age which saw the line of cleavage split broad and deep between the new medicine which grew from observation and the old medicine which grew from tradition and rested on ancient authority. Therefore one may well ask exactly what the changing status of astrological medicine was in that age among English-speaking people. By what degrees did the vast corpus of ancient lore dwindle from a more or less respectable body of theory at the beginning of the century to an empty shell of superstition at the end?

Before we can answer this question, we must clear away certain misconceptions and define terms. Some historians of a discipline like medicine write as though their sole duty were to trace those streams which lead to the state of science as we know it today. They dismiss as malign, regressive, and hence unimportant the pools and backwaters of superstition. But in doing so they overlook the fact that these backwaters are part of the region which they propose to map. It is as though a social historian should rest content when he had pictured the manners of the most highly educated class. So in the history of medicine one need not blush for portraying the underworld because that has always been part of the total picture of medical practice — an inescapable part. Again, the same historians who offer a Macaulay-like tale packed with the high drama of exploration and discovery only too often assume that each discovery somehow renders older views plainly and promptly obsolete. They present the Renaissance, for example, as a period which, fired by the rediscovery of classical learning, acted as a great liberating force which almost at once gloriously swept the dead past aside. But such a generalization, though it contains a seed of truth, is at best misleading, because what the Renaissance did do for many conservative physicians was this: it merely confirmed the authority of the astrological medicine which had been an integral part of *the* medicine

technique of the pseudo-science, not its history; and Franz Hartmann, *Occult Science in Medicine* (1893), is a Theosophist's attempt to revive Paracelsian doctrines.

of the past two thousand years. It blessed with the name of Hippocrates, Galen, Celsus, and Avicenna the theories which had been passed on straight through the Middle Ages. Let Robert Burton, writing in 1621, bear witness on this point:

> Astrology is required by many famous Physicians, by Ficinus, Crato, Fernelius, doubted of and exploded by others. I will not take upon me to decide the controversy myself; Johannes Hossurtus, Thomas Boderius, and Maginus in the Preface to his Mathematical Physick, shall determine for me. Many Physicians explode Astrology in Physick, (saith he), there is no use of it, an ill-advised art followed by those ignorant ones who are on the look-out for fame, but I will reprove Physicians by Physicians that defend and profess it, Hippocrates, Galen, Avicenna, &c., that count them butchers without it.[4]

Burton's evidence is unmistakable. By the 17th century, medical starcraft was under fire as a useless, even criminal, practice; but in the eyes of those who reverenced authority, the fortress stood undamaged. In fact, astrology in medicine never was exploded: it was worn away by slow attrition.

Our problem is complicated by the fact that astrology was so deeply imbedded in the thought of the time that it is difficult to find any medical treatises which show no traces of it. On the one hand, the Galenists, who represented the conservative classical school, inherited a large corpus of astrological doctrine along with their physiology of the four humors. On the other hand, the spagyrists or chemical physicians, who stemmed from Paracelsus and Van Helmont and who were the most vigorous proponents of Baconian empiricism, were also entangled with the doctrines of signatures and sympathies which in origin were altogether astrological. Where then can a line be drawn between astrological medicine *per se* and all its relatives? We may take *astrological* to mean that which assumes the existence of partially understood influences or rhythms originating in the solar system and operating upon the earth and all its creatures. But *astrological medicine* must be taken to mean that theory of medicine which holds that these stellar influences or cosmic rhythms are more or less direct causes of disease and that the physician should therefore follow this rule of thumb: look not at your patient but at his stars. Let Thomas Sydenham serve as a test case. Sydenham certainly assumed the existence of partially understood cosmic influences and rhythms, and these he applied to the periodicity of epidemics. But Sydenham was in an opposite camp from the astrologers because his clinical method was a denial of their procedures. His steady concentration on the patient and on the course of the disease itself

[4] *The Anatomy of Melancholy*, ed. Floyd Dell and Paul Jordan-Smith (New York, 1927), p. 390.

was a reversal of their whole technique. The distinction therefore is one of degree. By Sydenham's time it had long been understood as a result of the common division of astrology into its two branches, natural and judicial. Natural astrology predicated the existence of influences and rhythms, but did little more than point these out. To say that the moon, tides, and women run in cycles of 28 days was to state a fact of natural astrology; so, too, was the declaration that the moon exercises an influence over the insane. But judicial astrology was that part of the pseudo-science which concerned prediction and which was subject to widespread attack. Astrological medicine, as we understand it here, belonged mainly to the judicial branch, for the astrological physician would diagnose the disease, predict its course, and prescribe for it on the basis of his prediction — often merely by casting a horoscope for a patient sight unseen.

One further correction and then we are done. The standard account of the century-long quarrel in England between the Old Science and the New is R. F. Jones's *Ancients and Moderns*.[5] As Professor Jones has demonstrated, in medicine the struggle between the Galenists and the spagyrists was of incalculable importance because of the role played by the latter. These rebellious followers of Paracelsus and the alchemical tradition formed a left wing which fought valiantly for the Baconian method of experiment and observation. In their attacks on the authority of the ancients, to say nothing of their assaults upon the stronghold of Galenism in the Royal College of Physicians, they served as liberators. Despite their extravagances, none did more to shatter authoritarianism and open the way for the acceptance of the New Science. All this is undeniable, but the picture does have its reverse side. While some of the Paracelsians were opening new roads to truth, others were holding open old roads to error. The most notable of these were the Rosicrucians, whose medical theory, based in large measure on astrological assumptions, Professor Jones mentions only in passing. The earliest and most eminent English member of this school was Robert Fludd, M.D. His first work, *Apologia Compendiaria Fraternitatem de Rosea Cruce abstergens?* (Leyden, 1616), summons cabalistic magic and astrology as the best techniques whereby to read the book of nature. Elsewhere in Fludd's more purely medical works the story is the same. The various tractates which he intended as part of his masterwork on metaphysics and medicine contain fifteen books devoted outright

[5] *Washington University Studies*. New Ser., Language and Literature, No. 6 (St. Louis, 1936). Unfortunately this invaluable work lacks an index, but a coherent account of the medical war can be obtained by consulting pp. 5–9, 84–85, 213–31 (the main entry), 255–57, 274–76.

to astrology.[6] His *Anatomiae* (Frankfort, 1623) devotes the first two hundred pages solely to tabulations, most of them of occult correspondences and stellar influences. His *Medicina Catholica* (Frankfort, 1629) outlines the entire structure of astrological medicine by means of elaborate charts and diagrams. Not that Fludd was what used to be called "a vulgar wizard." On the contrary, he was a man of wealth and family who had an extended medical education on the Continent, who enjoyed an honored place in the Royal Household of France, and who won as English patron King James himself.[7] His London practice was large and profitable; he served four times as Censor of the Royal College of Physicians; and his writings were eagerly sought by leading Continental printers, who paid him well and issued his works with sumptuous illustrations. Himself a devout Anglican, he was on intimate terms with the leading churchmen of his day. Fludd was no back-alley quack.

More than any man of his time, he saw medicine, theology, and astrology as a single discipline. His entire system rested on the astrological assumption of microcosmic man in whom are centered all the forces of the universe. To this sense of the identity of man and the cosmos, Fludd brought all his religious fervor, and the most lyrical passages of his works are those which hymn the microcosm. Beyond all his contemporaries, he gave exalted expression to the philosophic bases of astrological medicine. Taking as his text the statement "Mundus est Dei imago et homo mundi," he explains that Adam was created in a twofold existence, his body being formed of the earth (the temple of God) and his soul of the divine breath. Hence man is the temple of God, heavenly and immortal; he contains the breath of God and is therefore capable of conjunction with the Divine.[8] As the perfection and end of all earthly creatures, man has been endowed with the power to read in the stars the will of the Divine, for God transmits His

[6] I refer to the *Tractatus Secundus* (Oppenheim, 1618), and the several parts of the *Tomus Secundus* (Oppenheim, 1619; 1620; Frankfort, 1621) which were designed as continuations of his *Utriusque Cosmi . . . Historia* (Oppenheim, 1617). For this bibliographical material and for much else in my discussion of Fludd, whose complete works are so rare as to be unprocurable, I am deeply indebted to J. B. Craven, *Doctor Robert Fludd* (Kirkwall, 1902), pp. 83, 110, *et passim.*

[7] James's patronage is at first sight surprising, for in his *Daemonologie in Forme of a Dialogue* (Edinburgh, 1597), pp. 12–13, the king had attacked judicial astrology. At the same time, he did allow a qualified belief in natural astrology, which he said included "the powers of simples, and sicknesses, the course of the seasons and the weather, being ruled by their [the stars'] influence." After Fludd had dedicated *Utriusque Cosmi . . . Historia* to the king, James summoned him for an interview, examined him because of the evil reports which were current about him, and at last declared himself willing to be Fludd's sponsor. See Craven, *Doctor Robert Fludd*, p. 65.

[8] "Tractatus Theologo-Philosophicus," chap. 5. in *Utriusque Cosmi . . . Historia* (1617).

will to the temporal universe by means of the heavenly bodies.[9] The regular order of nature rests on the ever-changing combination of planetary influences and virtues, while special expressions of the Divine will appear in novae, comets, and other such "Meteorological Impressions," which Fludd considered as "mysticall bodies, framed and fashioned by the finger of God."[10] According to such a teleology, the influences of the heavenly bodies and man's capacity to interpret them become of overwhelming importance. To be sure, God remains the first cause of all things in nature, but for the practical purposes of those who must deal with natural causes and events — physicians in this case — the interpretation of the stars takes rank with prayer.

In his actual practice Fludd must have resorted constantly to forms of divination, particularly the astrological techniques. His *Integrum Morborum Mysterium* (Frankfort, 1631) is divided into two parts. The first is a general religio-philosophic excursus on the nature of disease. The second, entitled *Catoptron*, is concerned primarily with astrological uroscopy and is introduced by an amusing cut of a physician casting a horoscope for the patient whose urine has been sent while the patient's little page stands ready to receive the diagnosis of his master's ailment. No feature of astrological medicine was more common than this treatment *in absentia;* none rested on more fantastic foundations; and none was more open to attack.[11] The theory was that by knowing the exact moment when the patient was born, or when he fell ill, or when he went to bed, or when he voided the specimen, the physician could erect a horoscope which would give him the requisite astrological data for a diagnosis. Trust in this branch of the art required an extreme faith in the stars from both physician and patient. In the early part of the century a physician like Fludd might practice it seriously. It was not long, however, in becoming the mainstay of quacks.

Fludd's faith in such forms of divination together with his interest in

[9] See the illustration following p. 140 of the *Philosophia Sacra* (Frankfort, 1626) which shows a series of stellar phenomena, beneath which is the figure of mankind with the legend, "Homo est perfectio et finis omnium creaturarum in mundo." This is a succinct pictorial expression of the views offered throughout the Preface to *Mosaicall Philosophy* (1659).

[10] *Mosaicall Philosophy*, Book IV, chap. 4.

[11] Early in the 16th century a number of popular books on the subject appeared: *The judycyall of vryns* (1527?) and *Hereafter foloweth the judgement of all vrynes* (1540?), but by the 17th century uroscopy was widely attacked, notably by Petrus Forestus, *The Arraignment of Urines*, trans. J. Hart (2 parts, 1623–25); by James Primrose, *De Vulgi in Medicina Erroribus* (1638); and most amusingly by Richard Whitlock, *Zootomia, or, Observations on the Present Manners of the English. . . . With a Usefull Detection of the Mountebanks of both Sexes* (1654). In his characterization of "The Peoples Physician," pp. 62–100, Whitlock discusses the popularity of what he calls "Waterologie" and coarsely ridicules the professors of the art as "Pisse-Prophets."

esoteric lore — he was an eager proponent of the "weapon salve" — subjected him to the charge of dabbling in magic. For this fault he was assailed in the eminent French scholar Mersenne's *Epistolica Exercitatio* (Paris, 1628). Fludd's defence was characteristic. He replied in his *Sophiae* (Frankfort, 1629) that he had always taken great pains to indicate which sciences were lawful and which unlawful, that specifically in writing on astrology he had introduced a debate between the two Greek occultists Porphyry and Iamblichus, the former taking the position that casting a horoscope is a matter of simple mathematics and the latter, speaking for Fludd himself, holding that any astrological prediction is a religious matter in which divine aid is needed.[12]

We have abundant evidence that his theories were regarded as important statements in his own time, for, besides Mersenne, such leading figures as Gassendi and even Kepler himself troubled to attack them.[13] We have further evidence that his views were not forgotten with his death in 1637, for as late as 1668 his occult medicine was employed, along with the discoveries of Harvey and Boyle, as material for a set of moral essays in the Reverend William Spurstow's *The Spiritual Chymist* (pp. 53–56). Fludd can safely be called England's greatest exponent of mystical, magical, and astrological medicine. At the same time his works must have been caviar to the general, not so much because they were written in Latin, published on the Continent, and issued in expensive formats, as because they were highly speculative and abstruse. His influence was greater among mystics than among practising physicians. So far as the rise of the New Science was concerned, Seth Ward's *Vindiciae Academiarum* (Oxford, 1654) states Fludd's position accurately: "there are not two waies in the whole world more opposite, then those of the *L. Verulam* and *D. Fludd*, the one founded upon experiment, the other upon mysticall Ideal reasons."[14]

During the first third of the century, while Fludd was addressing himself to an international audience, other students in physic and astrology of a more local fame were busy in London. The most notorious of these were Nicholas Fiske, John Evans, Dr. Simon Forman, and "Dr." John Lambe.[15] Nicholas Fiske (1579?–1660?) was the best of the lot. Born in

[12] Craven, *Doctor Robert Fludd*, pp. 131–32.

[13] *Ibid.*, p. 149, discusses Kepler's *Harmonices Mundi* (Linz, 1619) and Fludd's *Veritatis Proscenium* (Frankfort, 1621) as the chief documents in the controversy. Mersenne received support in *Petri Gassendi . . . Epistolica Exercitatio, in qua principia philosophiae Roberti Fluddi, medici, reteguntur* (Paris, 1630).

[14] Cited by R. F. Jones, *Ancients and Moderns*, p. 117.

[15] Less prominent astrological physicians included Alexander Hart, who "Professed Questionary Astrology, and a little of Physick"; Jeffrey Le Neve, "Student in Physick and Astrology," a onetime Mayor of Yarmouth who practised in London; and Richard Delahay (alias Dr. Ardee), "formerly an Attorney, [who] studied Astrology and Physick." See William Lilly, *History of His Life and Times* (2nd ed., 1715), pp. 24–27.

Framlingham, Suffolk, he practiced physic and astrology in Colchester, where he was friendly with William Gilbert. In 1633 he was in London as tutor to the Lord Treasurer Weston's son. In his medical practice he seems to have been more restrained than most of his colleagues, for a later astrologer tells us that he "would prescribe no other Physick, than Dietetical, unless Necessity call'd aloud for it," and that he used commonly to say that no physician deserved his bread until he was too old to have the teeth to eat it. His high-mindedness must have stood him in bad stead, for the same writer adds that he died poor![16] Among the astrologers, who were never generous in their rivals' praise, he was generally mentioned with respect. Not so the Welshman, John Evans, whose chief claim to fame was the instruction which he gave in the pseudo science to the most famous of English astrologers, William Lilly. Evans claimed to be a Master of Arts and apparently did study at Oxford. He gained a curacy in Staffordshire, but, according to his pupil, was unfrocked for shameful reasons (alcoholism is suggested) and settled in Gunpowder Alley, London, where he did a miscellaneous trade in almanac-making, astrology, doctoring, and spiritualism.[17] He was the probable author of *The Universall Medicine; or the Vertues of the Antimoniall Cup* (1634), a work which was cancelled by order of Archbishop Laud, probably at the urging of the Royal College of Physicians.[18] But Evans was a minor rascal compared to Forman and Lambe, both of whom were protected by powerful individuals in the court. Simon Forman (1552–1611) was a man of some education, having attended Magdalen College, Oxford, but in the 1580's he established himself in London as an open dealer in astrology, medicine, and black magic, for which he was frequented by ladies of the court. His chief efforts in this direction paved the way for the murder of Sir Thomas Overbury, one of the most famous of unsolved English mysteries. The circumstances of this case are irrelevant here: It is enough to say that when the Countess of Somerset wanted provocatives for her lover and anaphrodisiacs for her husband, she was promptly introduced to Forman as the man whose magical philtres could meet her needs.[19] Yet Cambridge University had licensed Forman as a medical practitioner in 1603. As to his qualifications in physic we have a full record in the prosecutions levied against him by the Royal College toward the end of Elizabeth's reign.

[16] John Gadbury, *Ephemeris* (1697), under the month of March.

[17] William Lilly, *Life and Times* (1715), pp. 20–23.

[18] See A. W. Pollard and G. R. Redgrave, *A Short-Title Catalogue of Books Printed in England, Scotland, and Ireland . . . 1475–1640* (1926) Nos. 10585 ff. These works are probably all by the same man.

[19] For a brief account see Sir Thomas Overbury, *Miscellaneous Works*, ed. E. F. Rimbault (1856), p. xxvii ff.

Simon Forman, a pretended Astrologer and great Impostor, appearing before the President and Censors confessed that he had practised Physick in England 16 years, and 2 years in London. He pretended that he had cured many Hectical and rabid people by the use of *Elect. e Suc. Ros.* in Wormwood water. He boasted that he made use of no other help for the discovery of distempers but his Ephemerides, and that by the heavenly Signs, Aspects and Constellations of the Planets, he could presently know every disease. Being examined in the principles of Astronomy as well as in the Elements of Physick, he answered so absurdly and ridiculously, that it caused great mirth and sport among the Auditors. He was interdicted practice and punished *propter malum & illicitam praxia* 5 *l.* which he readily and faithfully promised to pay. About 2 or 3 years after he was examined a second time, and found very ignorant. He confessed that he had never read any Author in Physick but one Cockis an obscure English writer, and of no reputation. He then acknowledged (as before) that he onely practised Physick by his skill in Astrology, in which Art being again examined, he was found not to understand the common principles of it. Wherefore he was committed to Prison and fined 10 *l.* . . . . After a month or 6 weeks imprisonment, he was released by an Order from the Lord Keepers. . . . Nine months after, this bold and impudent Impostor appearing before the College, confessed that he had prescribed a compound water to a Gentleman in a burning Fever, upon the taking of which he immediately died. Being asked upon what grounds he practised Physick or durst adventure to give medicines to the sick; he answered that he understood the nature of diseases and proper remedies onely by Astrology. Being then examined a third time in that Art by the Queen's Physician, he was again found a mere Impostor and ignorant in that as well as in Physick.[20]

Again committed to prison, he served his term, and upon his release sought refuge from the College by taking cover in the "liberty" of Lambeth, a section controlled by the Archbishop of Canterbury and thus a sanctuary from civil prosecution. But in 1601 the College addressed the Archbishop directly. The prelate at once replied that he would not countenance Forman, that he was only waiting for some civil body to request the ecclesiastical commission to take steps against the quack, and that "My Officers shall geve you assistance, or els they shall be no Officers of mine."[21] Lest there be any doubt of Forman's practices, the College acquired further evidence from a physician named Pelham, that the quack's whole medical technique rested on "his enquiring the Patient's name and place of habitation; then erecting a figure [i.e., casting a horoscope]; after that, passing a judgment of the disease and event thereto; then prescribing remedies, etc."[22] Forman's career found a fitting parallel in that of John Lambe (*d.* 1628), another scoundrel who spent fifteen years

[20] Charles Goodall, *An Historical Account of the Colleges Proceedings against Empiricks and Unlicensed Practisers* (1684), p. 337.

[21] *Ibid.*, p. 338.

[22] *Ibid.*

in prison for the practice of "execrable arts," but who managed to obtain a medical license from the Bishop of Durham. Toward the end of his days the College, disregarding Lambe's protectors in the Countess of Essex and the all-powerful Duke of Buckingham, held him for examination. As a gesture towards his patrons, Lambe's examination was held in English instead of in Latin. When asked to describe his medical training. "He answereth, that he never had taken to that study, that he makes no profession thereof, but that he lives by making Gentlemen merry. . . ." When asked about his knowledge of astrology, "he saith he understands nothing therein, but what he hath out of *Calliman;* and being asked what books he hath read in that Art, he saith he hath none but Calliman." When asked to account for the notoriousness of his practice, he sardonically confessed the truth: "it is without his desert, that he cannot hinder comers to him: and that all he did was trifles, and fooleries, and babbles to get a little money."[23] Within a year of this confession Lambe was lynched by a playhouse mob, who labeled him "the duke's devil." Physicians of this order were not long in disgracing astrological medicine.

Ostensibly the most powerful group in the maintenance of this branch of physic were those who compiled the textbooks. Actually, however, they were the very ones who did as much as anyone to discredit it. During the 17th century these practitioners formed a group whose profession became increasingly and patently corrupt. Their publications were voluminous, and they sometimes flattered themselves that they were the popularizers of medicine because they wrote in English and addressed themselves to a popular audience. What claims to be the first text of the subject is "a briefe Treatise of Mathematical Phisicke," written by one G. C., Gentleman, and appended to the 1598 edition of *A Briefe and Most Easie Introduction to the Astrologicall Judgement of the Starres* from the French of Claude Dariot. But whereas Dariot's treatise is fairly "briefe and most easie," G. C.'s supplement, being mostly astronomical tables and technicalities, would be rather beyond the scope of most laymen. A far simpler work, plainly aimed at a general audience, is John Fage's *Speculum Aegrotorum. The Sicke-Mens Glasse*, a black-letter volume first published in 1606 and reprinted in 1638. Fage explains that his book is not exhaustive because the casting of medical horoscopes has already been "learnedly and copiously intreated" by G. C.[24] Indeed Fage's book is hardly more than a simple catalogue of the ailments to be expected under each sign and planet, plus a short explanation of humoral physiology. The astrology is very

[23] *Ibid.*, pp. 400–01.

[24] *Speculum Aegrotorum* (1606), sig. G4ᵛ.

primitive: the moon is considered "the significator of the sicke body" because it is the planet nearest the earth. The reader is warned for example, that when the moon is in Pisces and afflicted by Mars, the ailment to be expected is "a griefe proceeding of much ingurgitation of wine or strong drinkes" (sig. G_1^v). Such statements would be farcical if one could forget the suffering which resulted from these doctrines.

It was not, however, until the middle of the century that such textbooks became common. The ground was broken by William Lilly's *Christian Astrology* (1647), which is today the best compendium of the pseudo-science and which offers a fifty-page *vade mecum* of the rules of astrological physic (pp. 243–96). The sale of Lilly's book was guaranteed by his enormous prestige, first as a highly successful propagandist for the Parliamentarians and a prophet of their victories, later as the forecaster who was thought to have prophesied the Great Fire and the Great Plague of London in 1665/66. Lilly himself tells us in a commendatory letter prefixed to Richard Saunder's *Astrological Physick* (1677) that one of his long cherished hopes was to expand the medical section of *Christian Astrology* into a full length book, though failing sight forestalled his ambition. At all events, in 1670 through the good offices of Elias Ashmole, the philanthropist who gave Oxford its first great scientific collection, Lilly was licensed to practice medicine by the Archbishop of Canterbury.[25]

But so far as medical history is concerned, even Lilly's light was hidden under the bushel of publications which sprang from the pen of Nicholas Culpeper, student in physic and astrology.[26] Culpeper's career began at the age of 33 with a scandalous, but smashing success when he published a translation (1649) of the London dispensatory made by the College of Physicians. This was popularizing medicine with a vengeance, for Culpeper blandly rendered into English for the use of all men the prescriptions which the College had carefully guarded in medical Latin. He was assailed on all sides, not only by outraged spokesmen for the College but also by the spagyrists and others who wanted to simplify or reform the pharmacopoeia. This storm gave Culpeper a famine market for whatever he might write or translate. In the remaining years of his life he did his best to meet the demand with such works as *Semeiotica Uranica, or an Astrological Judgement of Diseases* (1651), with *The English Physician* (1652), which was revised and enlarged the following year, and with *An Astro-*

[25] *The Diary and Will of Elias Ashmole*, ed. R. T. Gunther (Oxford, 1927), p. 87, under 8 Oct. 1670.

[26] The best brief account is that by Burton Chance, "Nicholas Culpeper, Gent.," *Annals of Medical History*, New Ser., III (1931), pp. 394–403.

logical Work Left to Posterity in the year of his death, 1654. Indeed his bequests to posterity were more generous than even he could have expected: his widow, his printer, and a swarm of herbalists down into the 20th century have profited from his work. After his death a volume containing four books of astrological medicine ascribed to him as translator had swollen to 17 books on the subject.[27] Fifty years after his death *A Directory for Midwives* was still being published in his name, and his herbal has seldom been out of print. The various titles and editions of his works in the Cushing collection alone number more than 100 items.

His chief non-medical work, *Catastrophe Magnatum* (1652), was a flat fiasco. Encouraged by the success of dismal predictions during the years of the Civil War, most of the British astrologers, Culpeper among them, continued to heap forecast of disaster upon disaster upon disaster. A solar eclipse in 1652, they said, was to produce Black Monday, a day which some of them hinted might see the end of the world. Apparently they succeeded in making the nation's blood run cold, for a contemporary tells us that on the fearful Monday of March 29, 1652, thousands of Londoners locked themselves in their houses, others ran mad in the streets and hanged themselves, while one dauntless quack did a thriving trade in "Medicines, Pills, and Antidotes" against the effects of the eclipse.[28] Unfortunately for Culpeper and his colleagues, the eclipse was but partial so that the day remained fair and clear. The astrologers tried to retract their error, but not before the satirists had managed to trounce them roundly.[29] Such mishaps, however, stud the history of astrology; and, though this fiasco no doubt lost the occultists some credit, it was far from crushing them.

Indeed the number of texts of astrological medicine rose sharply with this decade. Culpeper's medical success brought forth in swift succession William Andrews' *The Astrological Physician* (1656), Lancelot Coelson's

[27] *Four Books of that Learned & Renowned Doctor, Lazarus Riverius* (1658) grew into *The Practice of Physick, in 17 Books* (1668). The additions were made by Abdiah Cole (a popular printer of pseudo-scientific works) and ironically by William Rowland, the presumed author of *Judiciall Astrologie, Judicially Condemned* (1652).

[28] These details occur in an eight-page tract, the title of which is worth quoting in full: *The Astrologers Bugg-beare: Being a briefe Description of many Pitthy Passages, which were brought to passe upon that day which the Astrologers painted out for Black-Monday: Whereby wee may all see and know that God's power is beyond mans expectation. Mark well and take notice, it is worth your observation. Written by L. P.* [Lawrence Price?]. *London Printed for Sicnarf Seloc* [Francis Coles], *in the Yeare of the down-fall of darke Astrology, and are to be sold in Country and City, by honest harmless people that love England and 'tis* [sic] *Friends* (1652).

[29] See *Black Monday turn'd White, or The Astrologers Knavery epitomized: being an Answer to the gross Predictions of Mr. Lillie, Mr. Culpeper, and the rest of the Society of Astrologers* (1652) as a sample of the taunts which echoed for many years, and the astrologer John Gadsbury's feeble retort in *Philastrogus Knavery Epitomized, with a Vindication of Mr. Culpeper, Mr. Lilly, and the rest of the Students* (1652).

The Poor Man's Physician and Chirurgeon (1656), Ralph Williams' *Physicall Rarities* (1657), John Tanner's *The Hidden Treasures of the Art of Physick* (1659), and William Williams' *Occult Physick* (1660). All were addressed to laymen, for the most part of the middle or lower classes. This outburst cannot be attributed altogether to Culpeper's success. The rise in books of astrological medicine paralleled the rise of astrological books generally. The middle years of the century were years of painful strife in England, religious, political, economic, and social; and whenever the fabric of society is wrenched, the occult sciences flourish. It was as true in 1645 as it was in 1945.[30] Moreover, the victorious party had put itself in the astrologers' debt by employing them as propagandists so that, in spite of violent protests within the party itself, government action against them was generally quashed.[31] Those who employ publicists may find themselves at the mercy of the same publicists later. Nor did the astrologers hesitate to adopt Culpeper's role as public benefactor. After all, were they not making generally available to any man who could read English the astrological legacy of Hippocrates, Galen, and Avicenna or of Hermes, Trithemius, and Paracelsus?

Among Culpeper's successors in the line of direct descent was the well-born John Heydon, who married Culpeper's widow. Heydon was an exploiter, but not a member, of the Rosicrucian Brotherhood, and the author of, among other works, *The English Physitians Guide* (1662). Heydon came by his occultism honestly, his grandfather having been the Sir Christopher Heydon whose *Defence of Judiciall Astrologie* (Cambridge, 1603) is the most learned of English treatises in behalf of the pseudo science. But this was about all that Heydon came by honestly. All his books are ill-concealed thefts from earlier writers; and he himself spent three terms in prison, twice on charges of treason, once under the Commonwealth and once under Charles II. *The English Physitians Guide* contains a long autobiographical preface written in a style so elevated and incoherent as to be farcical and full of the most amazing evidence of the author's smugness. We learn from his account that he was nobly born and, though afflicted with rickets while a youth, grew into a tall, handsome figure of a man with well proportioned limbs and dark curly hair. His genius was named Malhitrel, and his spirit moved under the sonorous title of Taphza Bnezel-

[30] Note the widespread revival of astrology following the first World War. No nation has been exempt from it, but it was especially strong in Germany. As for the astrological revival in the United States, see your local news-dealer.

[31] The protests were mainly from Puritan clergymen like Thomas Gataker. For the political intrigues see William Lilly, *Life and Times, passim.*

thar Thaeraphimarah. Educated privately, he failed to attend Oxford because of the conjunction of Saturn and the sun which led to the Civil War. He commanded a Royalist cavalry regiment, his father being Lieutenant-General of the Ordnance to Charles I, but never killed any man willingly. His horoscope showed him to be naturally bashful, but this failing did not prevent his travels in Spain, Italy, Turkey, and Arabia. At the age of 20 he wrote *The Harmony of the World*, which, though he was in perfect health, left him with a sense of completion. This feeling passed, and he next made himself the perfect master of the bases of philosophy, law, and government which he set forth in various treatises for his friends. He then fell in love with a lady from Devonshire but a study of his horoscope showed him that he should not marry. Rather he wished that elect Rosicrucian spirits could beget descendants mystically, "without Conjunction, or that there were any way to perpetuate the world without this trivial and vain way of Coition, as Dr. [i.e., Sir Thomas] Browne calls it: It is the foolishest act a wiseman commits all his life" (sig. f_6^v). This pious wish must have died a-borning, for Heydon had married Culpeper's widow shortly after her husband's death in 1654.

As one might expect, *The English Physitians Guide* is a gallimaufry of superstitious marvels rather than a methodical treatise. Book I contains a brief but pretentious discussion of God, art, and nature, followed by an answer to objections against Rosicrucian medicine. Book II treats numerology, each number under 12 — i.e., the 12 signs of the zodiac — having power over some aspect of mundane affairs, and numbers over 12 concerning the realm of the angels. Book III handles mainly the attainment of longevity, with digressions into psychology, witchcraft, and astrology as understood by the Brotherhood. Book IV gives a Rosicrucian pharmacology and directions for various alchemical experiments, while Book V presents chiefly the preparation of Rosicrucian medicines. Book VI, Heydon tells us, was planned as a textbook of astromantic and geomantic calculations, but contains instead a further plagiarism from *The New Atlantis* which Heydon had started to rifle in his Preface.[32]

The *Guide* contains no methodical account of astrological medicine, but it is implicit everywhere. We learn, for instance, that the moon is the planet which transmits all stellar virtues and influences to the earth. These virtues and influences constitute the heavenly heat in all earthly things so that if anything goes amiss with these forces in the human body,

[32] Heydon used his material on geomancy in his *Theomagia, or the Temple of Wisdom* (3 parts, 1662–64).

the person is aptly termed *distempered*, the object of medicine being to restore the vital warmth to its proper degree (pp. 143–44). A catalogue of medicaments to serve this purpose is given at another point (p. 27 ff.), so that those who are afflicted with such malign influences as "the water of the sun in Virgo" can be relieved of the concomitant "twisting of the guts."

Heydon's book engenders several reflections. It was obviously planned, as its title indicates, to serve as a supplement and corrective to Culpeper's *English Physician*. At times he cites Culpeper approvingly, as when he says that Umbelicus Veneris is a powerful aphrodisiac (p. 96), but more commonly he attacks Culpeper, as when he contrasts the excellence of Rosicrucian medicines with "the common Collegian Doctors drenches, or Culpeper's way" (p. 103). His chief objections against his predecessor were Culpeper's relative ignorance of Rosicrucian physic and his attempt "to make himself famous in Taverns and Alehouses, as Paracelsus in his time did" (p. 143). But Culpeper is not the only astrologer to come in for a lashing. Elias Ashmole and William Lilly, to name only two among several, are called thieves and liars (pp. 81, 99). Conventional doctors, beginning with Aesculapius, Hippocrates, and Plato [*sic*], are shown at the head of a long parade of incompetents.

> Then you may see Galen, his soft and fine Company with him, that follow these as Gerard and Riverius, and Culpeper, and with these a long train of hedge-Doctors; and among these stand the Billmen, that dawbe their Medicines upon every Post [i.e., place handbills everywhere], with Caterers and Cooks, laden after them with all kind of dainty Drugs, stand forth and cry, they have these many Ages devoured heaps of Books, and took endless pains in searching out the Nature of single Medicines, and making mixtures of the same, and yet could hardly cure some Agues, and other lesse diseases: But for the four great diseases, viz, the Gout, Leprosie, Dropsie, Falling Sickness, they could never heal them, and have therefore for Oracles set them down incurable (p. 119).

No doubt an attack on the authority of the ancients and traditional medical ideas was among the intellectual necessities of the time, but such an attack as Heydon's, with nothing to back it up, was asking physicians to gather under the banner of sheer ignorance. But far more surprising than this assault is that upon some of the leading figures in the occult tradition to which Heydon professedly belonged — Paracelsus, Van Helmont, Glauber, and Boehme — who are put down simply as railers (Books III and IV, *passim*). Granted that Heydon, not being sworn a member of the Brotherhood, owed no allegiance to the Rosicrucians; even so, his con-

tinued invectives against *all* physicians, including those of his own persuasion stands well beneath contempt. To decry all others but oneself is the mark of the quack, and there seems to have been no reason except egotism blind and rampant in Heydon's madness. What his contemporaries thought of him can well be imagined: Elias Ashmole's label will serve "an ignoramus and a cheate."[33] When we add Heydon's credulity, which led him to peddle such old wives' tales as that of the Hindus who live "by the breath of their Nostrils, except when they take a far journey, [and] mend their Diet with the smell of flowers" (p. 113), it becomes plain that the high seriousness of Fludd had given way to the debased quackery of Heydon and that the mystical, magical medicine of the Rosicrucians had run a short-lived, unhappy course in England.

Heydon's remaining medical works do nothing to alter the conclusion. *A New Method of Rosicrucian Physic* (1658), his *Harmony of the World* (1662), and *El Havareuna, or the English Physician's Tutor in the Astrobolisms of Metals Rosicrucian* (1665) are merely reworkings of the *Guide*. One notices with satisfaction that Heydon, who had pillaged so many earlier writers without acknowledgement, was himself the victim of an unpublished plagiarism by one Dr. Rudd, whose *Treatise of the Miraculous Descension and Ascension of Spirits* (MS, 1714) repeats Heydon's writing on micro- and macrocosmic relations and medicines to prolong life.[34]

[33] See *Dict. of Nat. Biog.*, *sub* Heydon. The *Guide*, p. 149, mentions among his other opponents Drs. French and Owen, whose works I have not seen. The former was probably John French, M.D., author of various spagyrical treatises.

[34] Rudd's treatise in the Harleian MSS 6481–86 is described by A. E. Waite, *The Brotherhood of the Rosy Cross* (1924), pp. 398–99. Incidentally, A. E. Waite's *The Real History of the Rosicrucians* (1887), p. 314 ff., reprints the autobiographical preface to Heydon's *Guide*.

(*To be continued*)

Antiques of Medical Interest: Nipple Shields

T. G. H. DRAKE*

IN the past nipple shields of various materials have been used for the prevention and treatment of cracked and ulcerated nipples, as a base for the attachment of an artificial nipple and as a receptacle for escaping breast milk to prevent soiling of the clothing.

An early form is described and illustrated (Fig. 1) in *The Workes of that famous chirurgion Ambrose Parey*, translated by Tho. Johnson, London, 1649: "If when the child's teeth begin to grow, hee chance to bite the nipple of the nurse's breast, there will bee an ulcer verie contumacious and hard to bee cured; becaus that the sucking of the childe, and the rubbing of the clothes do keep it alwaies raw; it must bee cured with fomenting it with alum-water, and then presently after the fomentation putting thereupon a cover of lead, made like unto a hat, as they are here described, with manie holes in the top, whereat both the milk, and also the sanious matter that commeth from the ulcers may go out; for lead itself will cure ulcers."

Quite similar protective shields are illustrated in François Mauriceau's *Traité des maladies des femmes grosses*, 2nd edition, 1675, and in Hugh Chamberlen's translation of the same, 7th edition, London, 1736. In Chamberlen's translation, in speaking of cracked nipples, "To prevent the woman from hurts in these parts, which are very painful, and that the Rags may not stick to them, one ought to put upon them a litle wax, or wooden caps, or leaden ones, they being more dessicative, which must have several small holes on the top of them, as well to give issue to the sanies, which proceeds from the small ulcers, as that the milk, which often distils out of the nipples, may by this means pass away." When the nipples had been quite lost, Mauriceau advised the mother that after the ulcers had been entirely healed she should attempt to refashion the nipples by having another woman suck the breast, or by the use of a glass breast pump, "And to shape them and so preserve them, being thus drawn out, from sinking into the breasts again, let her put them upon a small cap of wood, or other matter, such as is above mentioned."

In almost identical words the anonymous author of *The English Midwife enlarged*, London, 1682, described the use of similar nipple shields.

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The figure of leaden Nipples to bee put upon the Nipple or Teat of the Nurſe, when it is ulcerated.

Fig. 1. Lead nipple shields, Ambroise Paré, 1649.

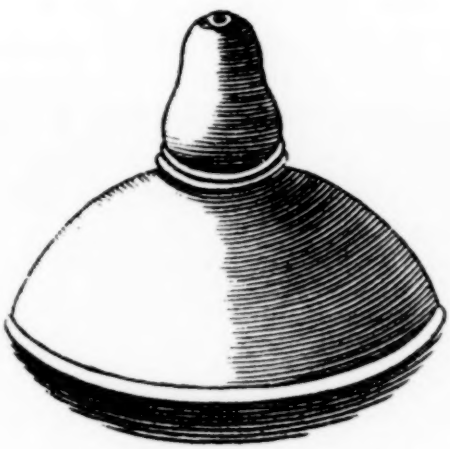

Fig. 2. Nipple shield topped with cow's teat,
Madame Breton, Paris, 1830.

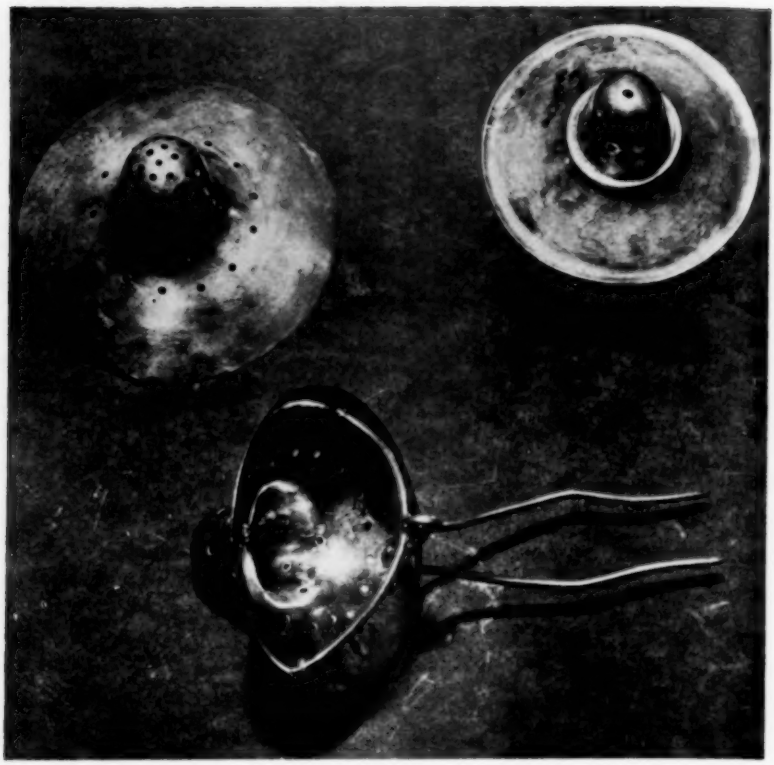

FIG. 3. Sterling silver nipple shields, London, 1797–1800.

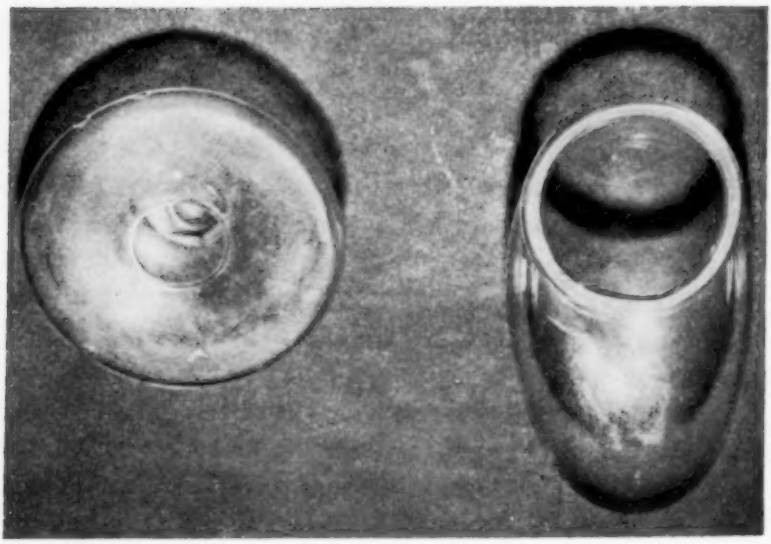

FIG. 4. Glass nipple shields, 19th century, England.

Nicholas Culpeper in *A Directory for Midwives*, London, 1737, for the prevention of clefts in the nipple advocated, "To prevent this evil, in the last two months of being with child, wear two cups of wax over the nipples with a little Rosin." Culpeper also advised, "That the child may suck without pain to the woman, let her have a tin or silver nipple, and cover it with the pap of a new killed cow, and let the child suck that."

The cow's teat attached to a nipple shield (Fig. 2) is described more fully in a circular issued by Madame Breton, midwife of Paris, advertising her patented nipple shield in 1830, "They have the advantage of preventing cracks and the most horrible pains which result therefrom and remedy the absence or severe malformation of the nipple. The nipples with which they are fitted are soft when they are to be used at once, in Paris or Suburbs, but to facilitate transport wherever necessary, Me. Breton can furnish them dry. These must remain in fresh water 15 to 24 hours until they have recovered their suppleness before being presented to the infant. When the infant has finished nursing they should be carefully washed and tested and placed under an inverted glass to prevent drying out. Price, a nipple shield mounted on an ivory base, 9 francs, of boxwood 5 f., for changing the small nipple when it is used 4 francs 50 c."

While wood and lead shields have not been preserved on account of their low intrinsic value, in Fig. 3 are shown three English sterling silver nipple shields from the author's collection: *upper left*, manufactured by Charles Chesterman of London in 1797, is of the simple protective type; *upper right*, circa 1800, has about the base of the nipple a projecting collar which might have been used for tying on an artificial nipple; *bottom*, maker E. W., London, 1798, shows an amusing example of the conversion of an antique object to present day use. By the attachment of a hairpin-shaped wire for insertion into the spout of a teapot, the nipple shield has been changed to a tea strainer.

Nipple shields of another type, 19th century, are shown in Fig. 4. Due to the extremely frequent irregular breast feedings of that period, escape of milk between nursings often occurred. Through the use of these receptacles, held in place over the nipples by a binder, the nursing woman attempted to prevent soiling of her clothing.

Some Wartime Influences on Health and Welfare Institutions in the United States

ALBERT DEUTSCH*

ONE night last April I was discussing the day's news with a friend of mine in medical research. The papers that day had run columns and columns of eyewitness accounts of the Nazi murder factories, documented with unforgettable pictures of the dead and the dying. If any skepticism concerning the monumental massacre of the innocents by the dehumanized hordes of Nazidom still remained in our land, it must have disappeared that week in the face of the overwhelming flood of evidence spread before our horror-filled eyes.

I was relating to my friend the details of a story about the Buchenwald death camp that had just come off the press wires: of men, women, and children burned and buried alive, of unspeakably sadistic tortures perpetrated upon enslaved civilians, of prisoners deliberately infected with deadly germs and placed under observation in gruesome laboratories as human guinea pigs, of people slowly starved to death as Nazi scientists took notes on malnutrition.

"Terrible, terrible," my friend kept repeating in trance-like horror. Then he added slowly, "I do hope those notes aren't lost. They ought to prove invaluable to future research."

My friend's afterthought was, of course, scientifically justifiable. But stated in the context of our conversation, I wondered if it didn't reflect that rationalizing process that takes place in most of us when, confronted by the grisly spectacle of senseless mass fratricide into which the human family is plunged periodically, we strive desperately to find some compensating factor in the wholesale slaughter, some iota of good blown by the ill wind of war.

(Parenthetically, let me make it clear that my use of the term "senseless mass fratricide" doesn't imply that no nation is ever justified in making war. We *had* to go into this one. The fact remains that war is a preventable plague, and this, the most destructive in all history, could have been avoided by the timely application of an international "germicide" or "bacteriostatic agent" when the Nazi virus first made its appearance.)

* Welfare columnist for PM. This paper was read at the Johns Hopkins Medical History Club, Baltimore, April 23, 1945.

Much has been written of the great medical advances rising out of recent wars, including the present one, as consolingly constructive by-products of an essentially destructive process. Many who do not subscribe to the militaristic theory that "war is the greatest and most magnificent of human actions" are yet ready to accept quite exaggerated accounts, such as have been given generous play by the American press in World War II, of what is euphemistically called "the miracles of modern military medicine."

The melancholy truth seems to be that wars generally have contributed but little to the progress of medical science. War undoubtedly does spread skills in medical practice as a result of the opportunities it gives doctors for operating on men in masses. It produces more surgeons, and improves their skills by practice.

Yet, in spite of all the ballyhoo, I fail to recall a single medical discovery of primary importance that has come out of this or any war. War has, in some cases, accelerated research on medical problems of military import. It has stimulated the large scale production of certain drugs — notably of penicillin in this war. It has led to improvements in medical techniques. The fractionization of human blood and its diverse applications in aid of the sick and wounded may be one important medical contribution given impetus by war needs, although its roots lie in peacetime research.

Wars, past and present, have undoubtedly had an impact on health and welfare institutions to a greater or lesser degree and for better or worse. War brings in its wake misery and disease. It creates new orphans, for whom orphan asylums must be built or expanded. It creates widows, for some of whom relief must be provided. It adds to the army of the disabled, for whom hospitals, homes, and pensions must be afforded. It devastates war regions which require relief and rehabilitation. It creates the conditions that breed epidemics. At times, it serves as a precipitating factor in the establishment or re-organization of agencies and institutions that leave a permanent mark on civilian health and welfare.

This it accomplishes mainly by dramatically focusing attention on problems hitherto neglected. It helps, in some instances, to crystallize long-delayed solutions. Such was the case with the Civil War.

The most impressive and pervasive impact of the Civil War on the nation's health and welfare structure arose from the origin and activities of the United States Sanitary Commission, which channelized the humanitarian impulses of the Union into an agency unique in its day. Its story is remarkable in American annals.

Fort Sumter fell on April 15, 1861, signalizing the start of the bloody conflict. The next day President Lincoln called out 75,000 troops to put down the rebellion. Hardly had he acted than "ladies' societies" began to spring up spontaneously in scattered localities throughout the North. The aim was the same everywhere — to give aid and comfort to the Union volunteers. The methods adopted were vague and often confused.

On April 25, 1861, a group of 50 or 60 prominent New York ladies gathered at the New York Infirmary for Women, founded four years earlier by one among them, Dr. Elizabeth Blackwell, the world's first female doctor of medicine. These women were inspired mainly by the example of Florence Nightingale in the Crimea in 1854. Their purpose was more ambitious than the organization of just another ladies' society to make bandages and hospital supplies, and to collect articles of relief for the local volunteers in service.

A committee appointed at this meeting drew up an "Address," announcing a mass public assembly at Cooper Union April 29 to formulate plans for a national organization that would coordinate the work of the various ladies' relief groups in providing extra medical supplies to the Army. It noted that "numerous societies, working without concert, organization or head, without any directive instructions as to the immediate and future wants of the army, were liable to waste their enthusiasm in disproportionate efforts, to overemphasize some claims and overlook others, while they gave unnecessary trouble in official quarters by the variety and irregularity of their proffers of help or their inquiries for guidance." This Address was printed in all metropolitan newspapers.

The resulting meeting of April 29 represented probably the biggest convocation of American women up to that time. It was addressed by leading civic workers and medical men, including the Rev. Dr. Henry W. Bellows (later a prime mover in the creation of the American Red Cross), and the venerable Dr. Valentine Mott of Bellevue Hospital. At this meeting the Woman's Central Relief Association was formally organized. Valentine Mott was appointed president, and the Rev. Dr. Bellows vice-president. The objects of the new society, as stated in its constitution, were:

" . . . to collect and distribute information, obtained from official sources, concerning the actual and probable wants of the army; to establish a recognized union with the Medical Staff of the Federal and State troops, and to act as auxiliary to their efforts; to unite with the New York Medical Association for the supply of lint, bandages, etc., in sustain-

ing a central depot of stores; to solicit and accept the aid of all local associations, here or elsewhere, choosing to act through this society; and especially to open a bureau for the examination and registration of candidates for medical instruction as nurses; and to take measures for securing a supply of well-trained nurses against the possible demands of the war."

This program, expanded later, will be recognized as a forerunner of the American Red Cross, organized two decades later, following the creation of the International Red Cross at Geneva in 1864.

A committee of delegates was appointed at the Cooper Union meeting to go to Washington as a body and consult with Federal civilian and military officials on a *modus operandi* for the new organization. The delegates were received coolly. They were politely informed that the medical and supply corps had the situation well in hand and that the Army wanted no entanglement with meddlesome busybodies, with "outsiders." Several dispirited delegates scurried back to New York with the news that civilian relief agencies were superfluous. Others stayed on in Washington, and saw the inertia of regular Army routineers, the confusion in official circles, the general inability of officials to comprehend the vastness of the tasks that lay ahead, shocking neglect of the health needs of volunteer troops streaming through Washington toward the battlefronts of the South. What these delegates saw strengthened their conviction that an auxiliary civilian agency was needed to protect the health and welfare of the Union forces.

The committee proposed the establishment of an official U. S. Sanitary Commission, consisting of civilian health experts, with powers to investigate military health conditions and to enforce recommendations for improvement. The proposal was inspired by the establishment of the British Sanitary Commission six years earlier, as a result of the shocking revelations on camp conditions in the Crimean campaign, where 60 per cent of the British troops died of disease. A statement presented to the Secretary of War declared:

> The present is essentially a people's war. The hearts and minds, the bodies and souls, of the whole people, of both sexes, throughout the loyal states, are in it. . . . It must be well known to the Department of War that several such commissions *followed* the Crimean and Indian wars. The civilization and humanity of the age, and of the people, demand that such a commission shall *precede* our second war of independence.

The proposal was scornfully turned down on the ground that such a

commission would be merely a fifth wheel to the military wagon. The committee persisted, offering a compromise. On June 6, 1861, the United States Sanitary Commission was created with the approval of the Secretary of War and the President. Its functions were to coordinate the work of voluntary agencies in giving supplementary medical aid to the army, and to advise government officials on sanitary problems involved in the military campaigns. It was to be supported entirely by private funds, with semi-public status.

The committee of delegates reorganized itself as the U. S. Sanitary Commission, added several members up to a total of 14 and thenceforth exerted a powerful influence in needling military authorities to improve health conditions. Its numerous publications were also invaluable in educating civilian officials and laymen in the needs of public health. Its direct and indirect influence on postwar health developments in the United States has not been sufficiently appreciated.

The Sanitary Commission's efforts served to stimulate local health organization. One of its most prominent members, Dr. Elisha Harris, the sanitarian, drafted the report in 1865 that led to the establishment in the following year of the Metropolitan Board of Health in New York City, the first efficient body of its kind in the metropolis. Dr. Harris later helped create the New York State Board of Health, and served as one of its three original commissioners. He also served as one of the eight quarantine inspectors under the abortive National Board of Health, created by Congress in 1879 and killed six years later.

Roger W. Shugg, in his excellent social history of Louisiana during the period 1840–1875, cites statistics showing an impressive decline in the mortality rates of New Orleans during the post-bellum period. He ascribes this decline partly to the establishment of a maritime quarantine, and continues:

> Perhaps equally responsible for the decrease of yellow fever and the general improvement of health was the fact that although New Orleans remained an unsanitary city, it was relatively cleaner after the war than before. The Federal army, with Butler, Banks and Shepley using the strong arm of military law, had taught the people the value of sanitation. Once the army had cleaned up the streets, they never completely reverted to their prewar condition.

The establishment of the American Public Health Association in 1871 is at least partly traceable to the public health agitation stirred up in large measure by the work of the U. S. Sanitary Commission during the Civil War.

The Civil War had an immediate and extensive impact on welfare institutions. The large numbers of soldier dead created the need for new orphanages. This, in turn, did much to intensify the child welfare crisis evident in many states.

For years states had been subsidizing children's institutions without exercising supervisory powers over them. No central state supervisory body had been established anywhere. The Civil War, with its added strains on relief structures, rendered impossible the further postponement of needed central bodies in the larger states. Massachusetts pioneered by creating the first state board of charities in 1863. Dr. Samuel Gridley Howe, perhaps the most romantic figure in American medicine and social welfare, who was then a member of the U. S. Sanitary Commission, was mainly instrumental in organizing this state board. He became one of its original commissioners and served as its president for nearly a decade. Ohio and New York organized state charities boards in 1867; five other states followed suit in 1869.

The Woman's Central Relief Association, which remained the financing and supply-collecting agency for the U. S. Sanitary Commission throughout the war, may be regarded as the first national federation of welfare agencies in our history. It became a prolific mother of future voluntary welfare agencies.

Louisa Lee Schuyler, one of its guiding spirits, founded in 1872 the New York State Charities Aid Association which remains till this day one of the outstanding private agencies in the country. It was empowered by statute to visit and inspect all public welfare institutions in New York State, and it has always been a powerful influence in framing and supporting social legislation. Josephine Shaw Lowell, another leading worker in the Women's Central Relief Association, whose husband and brother were both killed leading their troops against the Confederates, rose to a stellar position in American welfare history. She founded in 1882 the Charity Organization Society of New York City, the outstanding agency of its kind in the United States. She also served as the first woman commissioner on the New York State Board of Charities. She was one of the first welfare leaders to recognize the like goals of social work and organized labor and was active in both fields.

The Civil War provided an extraordinary opportunity to women in various health and welfare fields. Dorothea Lynde Dix, the great crusader for reform in the care and treatment of the mentally ill, was appointed the first Superintendent of Nurses of the U. S. Army. She was the first woman

to achieve an executive post in the Federal Government. The Civil War gave immeasurable impetus to the movement toward trained nursing as a profession.

On the Confederate side, women were similarly active in organizing humanitarian agencies and institutions. A number of them served efficiently as superintendents of hospitals for sick and wounded soldiers before the Confederate Government assumed over-all control of such institutions. Among them was Sally L. Tompkins of Virginia, who after the Battle of First Manassas helped organize and later managed a soldier's hospital converted from a Richmond mansion. Her ability was so outstanding that the Confederate government retained her in her managing post after it took over control of the hospital service. Simkins and Patton, in their book, *The Women of the Confederacy*, tell us that President Jefferson Davis, to remove the irregularity of having a civilian as superintendent of an army hospital, commissioned Mrs. Tompkins as a captain of cavalry, unassigned. She remained at her post to the end of the war, the only woman to receive a regular commission in the Confederate army. Ella King Newsom, a wealthy Arkansas widow, ably superintended a number of Confederate army hospitals and was widely known as the "Florence Nightingale of the South."

The catapulting of so many women into responsible posts during the Civil War undoubtedly helped to open new careers to members of this sex in social work and other fields and gave impetus to what is vaguely referred to as the "woman's rights" movement which, in ante-bellum years, had paralleled the anti-slavery movement.

The close of the Civil War witnessed a tremendous mushrooming of health, welfare, and educational institutions. The new freedman status of the liberated slaves necessitated the building of many humanitarian institutions of the type to which they had previously been denied access. The free public school movement, aiding poor white and Negro alike, gathered great strength in the South. It received a sharp setback when the tide of reaction set in, but it never again declined to the ante-bellum levels of mass illiteracy.

Only a few Southern states before the war had admitted Negroes to their hospitals for the insane. The postwar period saw a marked expansion of such institutions to provide for the numerous class of freedmen. Whatever the alleged mistakes of Reconstruction in other respects, it was generally a time of progress in the humanitarian fields. Much of the so-called extravagance and waste of post-bellum state legislatures is ac-

counted for by greatly increased expenditures for health, welfare, and educational institutions.

In listing the influences of the Civil War on American health and welfare institutions, the development of public homes for aged and disabled veterans should not be overlooked. North and South, but especially in the South, these homes were incomparably superior to the common almshouses that would have received many of these veterans save for the establishment of special institutions for their care.

States were extremely generous in their provision for institutional care for Civil War veterans on both sides. I recall journeying through the South in the late 'twenties and visiting a number of Confederate soldiers' homes. They were uniformly set in beautiful surroundings, with every evidence of loving care for the guests, and I wondered at the time why all old folks needing institutional care couldn't be similarly provided for by a society that calls itself civilized.

Before taking leave of the Civil War, I should like to mention its importance as a precipitating factor in the growth of a new medical specialty in America — that of neurology. The war gave medical men an extraordinary opportunity to study and treat injuries to the nervous system caused by gunshot and other wounds. Many a physician who had entered military service as a general practitioner emerged as a specialist in neurology. Dr. William A. Hammond, later a leading figure in the new profession, and its stormy petrel, served for two hectic years as Surgeon General of the Union Army. His progressive medical views and his impatience with red tape led to his dismissal in disgrace, following a court martial, but he was vindicated years later by a special act of Congress. Dr. S. Weir Mitchell, the most famous of American neurologists, got his start treating nerve ailments among Union soldiers. His classic treatises on military neurology were based on his observations in Civil War hospitals.

The development of neurology had a profound effect on institutional psychiatry. Before the Civil War American psychiatry was virtually confined to the institutional care and treatment of the mentally sick. Neurology developed mainly along extramural patterns. A bitter feud developed between psychiatrists and neurologists, with leaders in the latter field heaping scornful criticism on the former. This criticism was in large measure justifiable, since intramural psychiatry had become isolated from the main streams of medicine, while vested interests, conservative in nature, placed barriers against progress. The psychiatry-neurology

feud led to long-delayed reforms and culminated finally in a merger in the common field of neuropsychiatry.

Time permits only brief references to the impact of World Wars I and II on health and welfare institutions. The most pronounced influence of World War I, in my mind, was that on the development of psychiatry and mental hygiene. As I have written elsewhere:

> World War I gave a great impetus to the mental hygiene movement. It dramatized the need for a positive program of mental health. Wartime tensions brought to the surface many of the problems of mental disease that had remained hidden or underestimated in peacetime. The war also focused attention on the relationship between psychiatry and various fields dealing with matters of social maladjustment.
>
> World War I imposed the problem of rehabilitating returning psychiatric casualties (most of whom were commonly though erroneously known as "shell shock" cases), and social workers were called upon to play a leading role in this task. The problem dramatized as few other problems had the need for integrating psychiatric techniques with social work.

Psychiatry, under wartime stimulation, penetrated deeply and permanently into the philosophy and techniques of social work. Indeed, for a time following the war its actual usefulness was grossly oversold: a great many social workers became convinced that mental and emotional maladjustment were the roots of virtually all poverty and that the panacea for all social ills lay in the application of mental hygiene principles. It took a quake-like economic depression to arouse them to a realization of more fundamental causes of mass misery.

The first World War also had a pronounced and beneficial influence on child health and welfare. Two motivating factors were mainly responsible for this impact. One was implicit in the slogan: "Don't let our children suffer the consequences of the war." The second was the reaction to the long lists of men rejected as physically unfit for military service, stressing the need for health-building services for children as a defensive measure. The year 1918 was proclaimed by the President as "The Children's Year."

The years immediately following the war saw many progressive reforms in the child welfare field, including radical changes in state and local child welfare laws, Federal grants-in-aid to states for maternal and infant care, modernizing of child care institutions, establishment of child guidance clinics, etc.

The remaining time at my disposal permits me only to list some of the

influences, actual and potential, of World War II on the health and welfare fields:

1. The unrealized extent of psychiatric problems in our midst and the appalling lack of facilities for meeting them were dramatically reflected in selective service and military figures. About one-third of rejected registrants were turned down on neuropsychiatric grounds and a like proportion of medically discharged Army men were sent back to civilian life for the same reason. Draft tests have revealed especially the wide existence of neuroses requiring extramural attention. We can anticipate a rapid expansion of mental hygiene clinics as trained personnel becomes available, based on the war-tested team of psychiatrist, psychologist, and social worker. An expansion of state hospitals may also be expected. Meanwhile, however, the war has checked repair or expansion of present mental hospital plants and drained institutions of skilled and professional manpower, leaving them in a state of dangerously deteriorated neglect.

2. The stress placed on civilian health and medical facilities by the withdrawal of professional manpower into military service, together with the unexpectedly large percentage of rural youth rejected as physically unfit for the armed forces, has focussed attention on the gross inadequacy of such facilities in many areas. A bill before Congress — S. 191 — provided for Federal funds for building needed health and hospital facilities in medically-starved sections of the country.

3. The rapid wartime development of psychosomatic medicine, based largely on studies of the relation of emotional stress to such physical ills as peptic ulcer in soldiers, will undoubtedly stimulate greater interplay between psychiatry and general medicine in intramural and extramural practice.

4. Recreation, recognized as an important morale factor among men in military service and war work and liberally subsidized through such agencies as the USO, will undoubtedly be expanded in postwar civilian life under public sponsorship.

5. The mushrooming of war-industry plants and army camps in remote rural regions has brought organized sanitary and other public health services to many such areas for the first time. In many cases, the influences of this public-health penetration will be permanent. The elimination of health menaces, such as disease-breeding insects, accomplished as war-emergency measures, will undoubtedly have beneficial effects of lasting value.

6. Global war on disease, in conjunction with the global war on our

human enemies, has expanded the horizons of public health. An internationalizing process is already evident. The fact that millions of Americans were scattered on the battle-fronts ringing the globe, subject to exotic diseases, together with an extensive plane-transit system that has revolutionized concepts of time and space, has introduced radical changes in public health procedures in the U. S. A.

7. Federal subsidies for war-oriented medical and other scientific research, expended through the Office of Scientific and Research Development and the National Research Council probably will become a permanent factor in American medical research. The late President Roosevelt expressed great interest in the continuance of such subsidies. Dr. V. Bush's report on the organization of peacetime Federal financing of research was completed soon after his death. Such a move, if consummated, would assuredly affect the future of health and welfare institutions, stimulating measures that lead ultimately to the diminution of dependency and disease.

8. The tremendous expansion of services for war veterans will undoubtedly have a profound bearing on health and welfare futures. It is estimated that by the end of this war a total of 20,000,000 veterans — 15,000,000 of them World War II vets — will be entitled to medical and hospital services and other benefits through the Veterans Administration, which was established in 1923 under the name of Veterans Bureau. Thus nearly one-sixth of our population — not counting the children, wives, and widows of veterans — will be covered by various types of benefits under the Veterans Administration. It is estimated that at least 1,500,000 World War II veterans will be receiving pensions for service-connected disabilities. The VA plans to expand its hospital and domiciliary bed capacity beyond 100,000 during the next year, and to 300,000 beds by 1975. It is also given responsibility for a large-scale rehabilitation program for veterans. Its requested budget for the coming year, covering a variety of services, amounts to $2,707,000,000; there is little question that it will be appropriated in full. The budget is expected to be increased by about a billion dollars annually in the near future.

Obviously, the extent to which the Veterans Administration undergoes vitally needed and long-delayed reforms will greatly affect health and welfare institutions serving many millions of Americans. The continued separation or hoped-for integration of veteran and civilian services will just as obviously affect the general population.

9. The shocking figures of draft rejections, indicating that nearly one-

third of American youth are mentally, emotionally, or physically unfit for general military service, has strengthened the movement for a more secure underpinning for the Nation's health. This movement has found its most ambitious expression in the Wagner-Murray-Dingell Bill, which includes provision for a national compulsory health insurance system, together with a greatly expanded social security program. The bill, if passed, would undoubtedly revolutionize the present organization and distribution of medical and hospital services. Statewide health insurance measures have been introduced in the legislatures of California and Rhode Island, and similar bills are anticipated in other states.

10. The nation's ability to provide full employment at living wages for its labor force in wartime has inspired efforts to plan for full employment for peacetime. The cry for "60,000,000 jobs" has become a leading economic slogan for postwar America. Should this goal be realized, its impact on existing health and welfare institutions through the virtual elimination of dependency, is too obvious to be detailed here.

I have been able to treat but sketchily the highlights of wartime influences in this paper. Prepared under pressure, it makes no claim to exhaustive or even adequate treatment. But I do hope it opens the way to further research in this field.

Avicenna Explains Why Stars Are Visible at Night and Not During the Day

A. SÜHEYL ÜNVER*

IBNI SINA (980–1037) of Bukhara, known to the western world as Avicenna, was a famous representative of Eastern and Islamic medicine from the 11th to the 14th centuries. He was not only a renowned personage in medicine, as well as an equally famous writer of medical treatises, but had also full knowledge of astronomy, geology, mathematics, and philosophy. Moreover, in view of the currents of thought which prevailed at that time, Avicenna can be looked upon as an advanced person in the dogmatic sciences of the time. His deep knowledge of the positive sciences helped him to develop his scientific mentality. That he knew astronomy well can be proved by the following example.

In the year 1937, during an investigation on Avicenna in the library of St. Sophia, I came across a two-page article by him in one of his journals, which is registered under the number of 4832 in my catalogue. In this article, which started on the first page of the journal, Avicenna gave an explanation of why the stars are visible at night and not during the day. The article was later compared with similar copies in the libraries of Selimiye at Edirne (Adrianople) and the Meshed Library in Iran, by Fatin Gökmen, who was then the director of the observatory in Istanbul. His full translation of the article, together with his comments upon it, were published in the section on "Astronomy and Mathematics" of the manuscript on Avicenna, issued by the Turkish History Association in 1937.

In the 11th century a Turkish ruler who was known only by the name of Giyaseddin, wondered why stars are visible at night and not during the day. Some of the learned men of the time offered him the explanation that during the daytime the more intense sunlight overshadowed the light cast by the stars, whereas at night, after the setting of the sun, stars once more became visible. This answer was then compared by the ruler with another explanation given by a smaller group of learned men. According to their answer to Giyaseddin's inquiry, the intensity of starlight is diminished during the daytime; because of this, light cannot penetrate into the depths of heaven.

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Giyaseddin, the ruler, who viewed these answers critically, asked of Avicenna: "How can sunlight vanish from the semi-spherical heaven? That sunlight can be completely screened from heaven at any time of the day is not possible, since it is known that the world which comes in between the sun and the semi-spherical heaven is not so large as the sun itself. The world can prevent the sun's rays from falling on a part of heaven that is equal only to its own size. But since the sun is many times larger than the world, the part of heaven that is screened from the sun's rays at any time will be very small in relation to the world, and even much smaller in relation to the sun."

Avicenna, too, was not convinced of the validity of the explanations offered by his colleagues. Indeed, no one ventured further in solving this important problem than the explanations cited above.

Here are some of Avicenna's own thoughts and principles on the problem:

Air which fills Space is transparent. A transparent substance is neither luminous nor dark, but since it transmits light can it be seen through? A well-known scientific authority has said that Space, which is other than air, is not rendered luminous by sun nor by any other source of light; nor does it become dark in their absence. Substances which appear luminous when light rays fall upon them are dense objects. A very easy proof of the above-cited fact is as follows:

On a totally dark night, our power of vision extends well beyond Space to stars in heaven, even though we are unable to see objects which emit light of themselves, such as the sun, as well as objects which reflect light that falls upon them, such as the configurations in the moon or the mountains on the earth. The visibility of objects is no doubt due to the fact that transmission of light in Space occurs both at night and during the daytime. It is a well-known experience that although you are unable to see your own hand on a totally dark night, you very well can see a flame of fire at a *fersah*[1] from your location. These explanations and citations clearly demonstrate that the eye can see luminous objects, since the light emitted by them can pass across transparent Space both at night and during the daytime. Thus this definite and sound principle based on a scientific truth requires no further investigation.

Although a transparent object be perceived by itself, it can act as an envoy between the eye and the luminous objects. On the other hand, a luminous object by itself can be seen, but the power of visibility cannot extend to objects beyond it. Such a luminous object is made of substances which are dense and transparent. Examples of substances which possess the property of transparency are glass, ruby, and crystal glass. A still simpler example is water, which is partly dense and partly transparent, and can be seen by itself. Although not so good a medium as air, water can also transmit light rays and be seen through.

[1] A fersah is a measurement of distance that is approximately equal to a little more than five kilometers.

The air which fills Space is not absolutely pure but consists of a mixture of water vapor, smoke, and dust. On cloudy or foggy days, or on windy days, when the amount of water vapor or dust in this mixture is increased, the extent of visibility is diminished. Since these weather conditions often prevail, air can never attain an absolute degree of transparency.

Sky, like air, is transparent; it is not rendered luminous by light rays falling upon it, nor does it become dark in their absence. The color of heaven is a nonexisting false impression. Thus if one gazes upon an extensive transparent medium, its color appears uniform, due to the fact that visibility through the medium becomes diminished. The observation of the fixed stars, which are behind the seven layers of heaven, is a further proof of the transparency of heaven. If heaven were not transparent this would not have been possible, since stars cannot be seen through even a thin massive plate. Even if this plate were of pure crystal of a shield's thickness, not a single star could be seen, in spite of the fact that crystal is absolutely transparent.[2] Therefore we can conclude that heaven of such great thickness is absolutely transparent. It should be understood clearly that a transparent substance which is neither luminous nor dark is only a medium for transmission of light between the observed object and the eye.

Based on these principles, we can conclude that stars are invisible during the daytime for the following reasons: During the daytime the eye is occupied with the earth and its configurations, which are brightened by the sun's rays, transmitted through Space that is filled with a mixture of air, smoke, and dust. Therefore the previous theory that heaven itself is light during the daytime and dark at night is no longer tenable.

As a consequence of the theory that light is transmitted through heaven, the argument that it should be bright not only during the daytime, but at night as well, comes up. In connection with this question, it might occur to one's mind that the reason why stars are invisible during the daytime is that at this time the denser objects of our environment are bright. If the Space around us were similarly luminous, instead of being brightened by its own translucency, a man in a desert or on a mountain peak could not possibly observe any of his surroundings, such as the mountains or the walls. But if at such locations, the same man would lift his head up to heaven, he would be able to see the stars. However, as is well-known, this is otherwise. A man can observe Space, which is both transparent and dense and which renders light. No matter how small the quantity of air is, it can still be brightened by the denser objects in it. If its transparency were great, the visibility through it would be proportionally greater. Therefore, the reason why stars are seen only at night cannot be explained on the basis of the theory that sunlight is prevented from being shed on heaven at this time of the day.

If the latter were accepted, the aforementioned objection should be considered invalid. Perhaps the sun is hidden from view by objects on earth and on heaven, which are rendered bright by it. In the same manner, a person sitting by candle-

[2] During the century in which Avicenna lived glass of even 4–5 mm. thickness was only semi-transparent and was not clear. Most probably the reason for this was that at that time glass of an even surface could not be made.

light or by the light of a flame nearby, whose light is much less in relation to that of the sun, can see the stars, whose brightness is diminished in proportion to the intensity of the light. From this it becomes evident that strong flames do not brighten the sky. If they did, then the visibility of stars by all the people in the world would have been diminished at the same time.

The science of astronomy teaches us that the sun setting from one part of the world rises in its other parts, and that nights in our part correspond to days in other parts. This astronomical teaching further substantiates and clears our explanation. As has been previously stated, the visibility of stars at night and their non-visibility during the daytime is not related to changes in heaven but to seasonal variations of the sun.

Avicenna's article ends with the statement that his explanation perhaps affords an answer to Giyaseddin's question, all angles of which have been satisfactorily analyzed

The above citation taken from Avicenna's article offers an example of his scientific ideas and beliefs. These ideas can be shortly described and summarized thus:[3]

In answer to Sultan Giyaseddin's inquiry as to why stars are visible only at night and not during the daytime, the learned men of the time answered by the explanation that the intensity of sunlight overshadowed the less intense light cast by the stars. But the Sultan finding the above explanation unsatisfactory asked Avicenna the following questions: "Why are sun's rays absent from the semi-spherical Space as observed at night? What is the world's surface in relation to that of Space? How large a surface would its shadow cover? Do the sun's rays fall on heaven outside of the world's shadow? If so, why are stars not obstructed from view?"

Avicenna finds these objections worthy of thorough consideration and offers the following explanation: It is true that at night the sun's rays are transmitted to this end of Space. Space, like air, is transparent. Transparent substances possess two important properties: one is that they are not luminous but transmit light; they are not brightened themselves. The second property is that they do not obstruct the path of vision. During the day the sun which is above the horizon brightens the foreign components in air, such as dust and vapor. These components, which of themselves are not transparent, appear bright on account of light rays falling on them from other sources. Thus during the daytime our surroundings appear bright and the stars become invisible. This is easily

[3] Akil Muhtar Özden, "Avicenna, the Medical Man" (Avicenne médecin) *Revue de thérapeutique clinique et expérimentale*, No. 26, 1937.

proved when at night the visibility of stars in the light of a flame becomes diminished.

By this explanation, it becomes evident that Avicenna has satisfactorily attributed the solution of the present problem to the effect of the diffusion of light.

The present memorandum has been prepared for the purpose of introducing Avicenna by presenting one of the scientific problems which interested him. This problem, which was methodically and scientifically analyzed by Avicenna, was discussed in detail in an article written by us in the Turkish language in 1937.

Notes & Queries

Edited by MAX H. FISCH*

ANSWER TO QUERY No. 4. I sent an advance copy of the query about Narcissus Parthenopeus to my friend Fausto Nicolini, who is immensely learned in everything Neapolitan, and he very kindly sent a full and satisfying reply, which Dorothy M. Schullian has translated as follows:

New Light on the Neapolitan Physician Narciso Vertumno

Verdú or Verdum was the name of an old and noble family of Aragon. One of its members, Narciso the Elder, formerly canon at Saragossa, moved to Naples during the reign of Alphonso the Magnanimous (1442–1458) and there served as royal counselor to Alphonso and to his son Ferrante. He was deeply devoted to studies and particularly well-versed in theology and in neo-Platonic philosophy; in a letter of the aforesaid Ferrante he was termed "a man of outstanding reputation and most modest life," and Vespasiano da Bisticci found him "most learned in all seven of the liberal arts." In 1469 he received by investiture the monastery of Santa Maria de lo Patzre (of Suffering) in the diocese of Rossano; in 1471, together with the Neapolitan gentleman Antonio Cicinelli, he went as ambassador to the court of the Hapsburg emperor Frederick III; and in 1474 he was granted the wealthy bishopric of Mileto. He belonged to the academy founded in Naples by Panormita and later named Pontaniana,[1] and it was probably on joining this academy that, following the humanistic custom, he changed his surname, originally Verdú or Verdum, to Vertumno or Vertunno. He died in 1477.

A brother of this Narciso the Elder also moved to Naples, and to his son, Ambrogio by name, was born in 1491 the Narciso with whom we are concerned, Narciso the Younger. According to Toppi he was born not in Naples but at Penna in the province of Teramo in the Abruzzi, and later became a citizen of Naples. Certainly in all the documents of the period he is called "Neapolitan." He dedicated himself to medicine and surgery, and apparently already before 1520 he was rendering important services to the court of Spain, of which the kingdom of Naples had been a dependency since 1501. In any case, in 1520 he received the grant of the revenues of the toll called Bardella (pack-saddle) in the city of Otranto, and a little later also the feudal income of the territories of Mastrate, Abriola, and Clavelli in Basilicata, not to mention the fact that in 1524 Charles V named him his counselor, *protomedicus*, and *protochirurgus*. In 1525 he was in Spain, having arrived by then, as we are told by his contemporary Costantino Castriota (writing under the pseudonym Filonico Alicarnasseo), "at eminence as a result

* Chief of History of Medicine Division of the Army Medical Library.

[1] Of this academy, suppressed in 1935 by the Fascists and now re-instituted, Benedetto Croce is the honorary president.

of the scarcity of good physicians, at a time when others of his profession were lacking at court," words which, reminding us of the old adage *Beati monoculi in terra caecorum*, would lead us to the conclusion that Castriota did not deem our Narcissus a physician of worth. Worthy or not, the fact remains that in the very year 1525 Narciso attended Francis I of France, at that time prisoner in Spain, and cured him of an abscess of the head occasioned by a wound which he had received in the battle of Pavia, and that in February 1530 when he was at Bologna in the train of Charles V, he attended that emperor and cured him of quinsy.

Meanwhile, some time earlier, Vertunno had procured from the communal administration of Naples a large parcel of land near the church of Santa Maria delle Grazie at Caponapoli, a parcel occupied today by medical and surgical clinics; it was probably he who erected here at an unknown date a chapel to San Michele Arcangelo and transferred to it in May 1530 the mortal remains of Narciso the Elder, brother of his grandfather. In August 1532 we find him in Brussels, where he attended Giovan Paolo Coraggio, ambassador of the Neapolitan barons at the court of Charles V. All signs point to the supposition that a little later he fell out of favor with his imperial lord; otherwise, according to the above-mentioned Castriota, "he would probably have climbed higher if he had recognized his fallibility and not insisted on abiding by his own judgment in the illness of his master's son." These words, if they really correspond to the truth and are not instead the product of mere slander, can, it would seem, be interpreted only to mean that in treating a childhood illness of the future Philip II Vertunno had held obstinately to a diagnosis which later events proved mistaken. In any case, he was in Naples in 1534, where on August 31 he transferred the above-mentioned parcel at Santa Maria in Caponapoli to the communal administration in exchange for another site in the neighboring parish of Sant' Aniello Maggiore. There, near the palace of the count of Potenza, he erected a house in which he dwelt until his death and which in a *Description of the Parishes of Naples* compiled in 1598 was still called the "house of Narciso" even though it belonged at that time to Paolo di Masso, a judge of the Vicaria.

Without doubt Narciso was personally acquainted with the renowned poet of Venosa, Luigi Tansillo (1510–1568), who at all events (and we know not whether in jest or earnest) presents him as a murdering doctor in that "chapter" in which he enumerates two categories of persons who are guilty by professional practice of innumerable homicides — soldiers and physicians — and points to the impossibility of there ever being in the world anyone who could "stretch out more men than Narciso, I'm telling you, stretched out upon the ground in his time." The expression "in his time" seemed to Scipione Volpicella to indicate that Vertunno was already dead when Tansillo was writing, that is, about 1540. We are inclined, however, to substitute for this interpretation the one that at that time Narciso had retired from professional practice, since the mortuary registers of the above-mentioned parish of Sant' Aniello Maggiore record his death as having occurred at Naples in the above-mentioned house on June 20, 1551. He left a son, Domenico, who in 1551 belonged to the noble guard of Charles V whose members were called "immortals."

Sources. In addition to the many archival documents cited or used by Sergio Sersale in his work *I Vertunni* (Roma, 1938), see: Vespasiano da Bisticci, *Vite di uomini illustri*, in the collection of *Opere inedite o rare* of Romagnoli (Bologna, 1892), pp. 258–261; Niccolo Toppi, *Biblioteca Napoletana* (Napoli, 1678), p. 218; Filonico Alicarnasseo (Costantino Castriota) *Vita di don Fernando Francesco d'Avalos marchese di Pescara* (unpublished manuscript of the Biblioteca Nazionale of Naples); Gregorio Rosso (contemporary writer of chronicles), *Istoria delle cose di Napoli*, etc., ed. Gravier (Napoli, 1770), p. 36; Anonimo contemporaneo, *Breve tratto e discorso di quello che successe di bene al Regno di Napoli e a' baroni per l'andata del magnifico Giovan Paolo Coraggio, per nome e parte di detto Regno mandato alla corte dell' invittissimo imperadore Carlo quinto*, ed. Gravier (Napoli, 1769), p. 27; N. F. Faraglia, *Una descrizione delle parrocchie di Napoli fatta nel 1598*, in *Archivio storico per le provincie napoletane*, XXIII (1898), pp. 531 and 533; L. Tansillo, *Capitoli*, ed. Scipione Volpicella (Napoli, 1870), pp. 39 and 47–48.

FAUSTO NICOLINI

Naples, Nov. 20, 1945

Petrus de Montagnana

QUERY No. 5. Who was Petrus de Montagnana? The *Fascicolo di medicina* published at Venice by Joannes and Gregorius de Gregoriis on February 4, 1493–94, opens with a portrait of a scholar sitting at his desk amid a group of medical tomes which range in authorship from Hippocrates and Galen down through the Arabists to the more modern Pietro d'Abano. The scholar is plainly labeled with the name Petrus de Montagnana, but the details of his life and work unfortunately remain obscure to historians of medicine. Dr. Charles Singer[1] identified him with the famous Bartolomeo, to whom had been assigned a treatise on urines printed at Padua in 1487;[2] the portrait in the *Fascicolo* is prefixed to another work on urines, and this connection, together with Bartolomeo's renown at the Paduan school, may, if Bartolomeo be truly Pietro, warrant the use of his portrait in the *Fascicolo*. But 20 years after his publication of the *Fascicolo* Singer was in doubt concerning the identification,[3] and it is to be hoped that some evidence may soon be brought forward which will settle the question once and for all.

Earlier historians both of medicine and of Italian literature give conflicting accounts; throughout, however, there seems to be the tradition of a Bartolomeo who was especially eminent in surgery and of a Pietro who, while known also as a surgeon, published an anatomical treatise which contained very clear and exact illustrations of the internal parts of the human body.[4] These two personalities Portal merged in a Pierre to whose life he assigned the details commonly ascribed to that of Bartolomeo, only to present ten pages later an actual Bartolomeo. Tiraboschi[5] rescued the identity of Bartolomeo, but attributed to the Pietro

[1] *The Fasciculo di Medicina, Venice, 1493* (Florence, 1925) Part I, p. 10 f.

[2] The colophon reads: Finit de urinarum iudiciis libellus non parum utilis qui compositus fuit ab Egregio viro Magistro Bartholomeo de Montagnana vel (ut alii referunt) ab excellentissimo viro Magistro Zacharo de feltro.

[3] In a letter dated December 11, 1945, he says: "He [Petrus de Montagnana] bothered me for a long time and many years ago I spent several days trying to throw light on him, but I got nowhere."

[4] Portal, *Histoire de l'Anatomie et de la Chirurgie*, vol. I (Paris, 1770), p. 242, citing Paschal, *Biblioth. Med.*

[5] *Storia della letteratura italiana*, Vol. VI, 2 (Florence, 1809), p. 445.

of the 15th century the authorship of at least certain parts of the *Fascicolo*,[6] and followed Nicolaus Papadopoli[7] in putting the anatomist Pietro at the end of the 16th century. The tradition of two Pietros and a Bartolomeo was continued by Salvatore de Renzi[8] with the added particulars that there was a Bartolomeo Junior who died in 1525 and that the anatomist Pietro was an uncle to Bartolomeo.

Camillo Minieri-Riccio[9] lists a Pietro Montagnana among the members of the Accademia Pontaniana. It is possible that in his biographies[10] of these members (which I have not seen) he has been able to throw some light upon the identity of the Pietro whose portrait graces the *Fascicolo*.

DOROTHY M. SCHULLIAN

Thomas Geminus

QUERY No. 6. Who was Thomas Geminus? In view of his great historical importance as a popularizer of Vesalian anatomy and as an early master of the engraver's art, it is regrettable that we know so little of his life — almost nothing beyond what was collected by Lionel Henry Cust in the article on Geminus in the *Dictionary of National Biography*, except that he was for a time surgeon to Edward VI. The three editions of his Vesalian compendium, one in Latin and two in English, dedicated to three English sovereigns, have recently been reexamined by Sanford V. Larkey ("The Vesalian Compendium of Geminus and Nicholas Udall's Translation," *The Library* 13: 367–394, 1933) and by Harvey Cushing (*Biobibliography of Vesalius*, passim) but without adding to our knowledge of the life of Geminus. It is clear that he was not an Englishman. The fact that he calls himself Gemini in the English editions of his compendium suggests that he was an Italian. The only more definite clue is that in the Latin edition of 1545 the dedicatory epistle to Henry VIII is signed Thomas Geminus *Lysiensis*. The meaning of *Lysiensis*, presumably a toponymic, was a standing question for years in *Notes & Queries* (4th ser., vol. 4, pp. 391, 567–8; vol. 5, pp. 360, 435, 516; vol. 9, p. 6; 5th ser., vol. 11, pp. 67, 117, 139, 153). No satisfactory solution was reached. (The J. Dixon who raised the question and kept it alive was probably James Dixon the ophthalmologist.) The masterly quality of the copperplates in the compendium is such as to suggest that in 1545 Geminus already had a considerable part of his career behind him. It should be possible to trace it.

John Houghton

A LITTLE over two years ago, Dr. Josiah C. Trent published five letters of Marcaurelio Severino to "The Very Honourable English Physician, John

[6] " . . . di cui ancora si hanno tradotti in italiano alcuni trattati in una raccolta di operette mediche intitolata *Fasciculo*. . . . "

[7] *Historia Gymnasii Patavii* (Venice, 1726), Vol. I, p. 288.

[8] *Storia della medicina in Italia*, Vol. II (Naples, 1845), pp. 351 and 443.

[9] *Archivio storico per le provincie napoletane* 5 (1880) 364.

[10] Published in installments (cf. *ibid.* 7 [1882] 448), in a political journal in the years 1881 and 1882. The British Museum has a copy of the collected biographies: *Biografie degli accademici alfonsini, detti poi pontaniani, dal 1442 al 1543*. (*S.l.n.d.*) In-16, VIII-620 p.

Houghton" (*Bull. Hist. Med.* 15: 306–323, 1944). Dr. Trent was unable to learn anything more of John Houghton than appeared from the letters themselves — that shortly before August 8, 1640, he had been appointed town physician of Norwich, and that he was on fairly intimate terms with William Harvey. Some additional details are provided by the university records of Cambridge, Leyden, and Padua. He was a son of Roger Houghton and was born in 1607 or 1608, probably in Suffolk County, England. He matriculated as a pensioner at Clare College, Cambridge, in the Easter term of 1624. He took his B.A. at Cambridge in 1627–1628 and his M.A. in 1631. He matriculated at Leydon on July 2, 1632, at the age of 24, and at Padua on July 31, 1636, where he was inscribed as from Suffolk. He took his M.D. at Padua on July 11, 1637. (John and J. A. Venn, *Alumni Cantabrigienses*, pt. I, vol. II, p. 413. R. W. Innes Smith, *English-speaking Students of Medicine at the University of Leyden*, p. 121. It is just possible that there are further details in Horatio Brown, *Inglesi e Scozzesi all' Università di Padova*, 1922, which I have not seen.)

It was apparently after taking his degree at Padua that Houghton visited Naples in the company of his teacher John Vesling (professor of anatomy, surgery, and botany at Padua), who introduced him to Severino. After his return to England, Houghton carried on an extensive correspondence with Severino, and was responsible for the latter's complete conversion to Harvey's doctrines. Severino speaks of Houghton as second only to Harvey among English physicians. Houghton's letter on the "cardiac worm," with an engraved illustration, is printed in Latin in the second edition of Severino's *De recondita abscessuum natura*, Frankfurt, 1643, pp. 281–284.

With these meager but essential facts to start with, some interested reader should be able to round out the story of Houghton's life and make a useful contribution to the history of medicine in England.

Association of the History of Medicine

ARRANGEMENTS are being made to hold the first post-war annual meeting of the American Association of the History of Medicine in May. Specific details as to place, time, and program were not yet available when this issue of the JOURNAL went to press. Readers who are not members of the Association, and who would be interested in details of the meeting, are invited to write the secretary of the Association, W. B. McDaniel, 2d, College of Physicians of Philadelphia, 19 South 22nd Street, Philadelphia 3, Pennsylvania.

* * * *

DR. HYMAN I. GOLDSTEIN, Camden, New Jersey, has been appointed Professor (and Head of the Department) of the History of Medicine at Essex College of Medicine and Surgery, Newark, New Jersey.

Book Reviews

A. E. Clark-Kennedy. *The Art of Medicine in Relation to the Progress of Thought.* Cambridge, at the University Press; New York, The Macmillan Company, 1945. 48 pp. $.75.

Within the small compass of 48 pages, Dr. A. E. Clark-Kennedy of the London Hospital and the University of Cambridge has presented a general summary of the relation between modern medicine and current thought. It is the author's purpose to "consider the way in which medicine, by bringing science and thought into intimate and personal relationship with humanity, has resulted in science making a greater contribution to thought than would otherwise have been the case." This difficult and important theme is treated historically, and the resultant essay might well be regarded as a concise intellectual history of medicine.

For the author's present purposes a schematized or conventionalized historical narrative supplies sufficient background. Three periods are taken to be the most significant. The first or Hippocratic period runs from the 6th century before Christ to the death of Galen in the 2nd century of the Christian era. The second age is the Renaissance, defined as beginning with the publication of Vesalius' *De Fabrica* in 1543 and ending in the 17th century. The third era consists of the last hundred years. Little mention is made of intervening periods such as the Christian Middle Ages and no mention is made of medical thought in the Moslem world, in the Far East, and in primitive cultures. By this restriction of scope the history of medicine is taken to be equivalent to the history of western European medicine. It is not necessary to carp at the author for circumscribing his subject in this way, since the sacrifice of completeness does no damage to veracity, while it adds concentration and emphasis.

The ancient Greek physicians studied disease as an objective phenomenon of the natural world. They laid down an ethical code, and Dr. Clark-Kennedy credits them with establishing the idea of the physician as a necessary aid to living in human society.

During the Renaissance great foundations were laid in anatomy, physiology, and chemistry. Sydenham elaborated the limited nosographic conceptions which still have wide acceptance. Medicine made no notable contribution to human thought.

The last hundred years have produced not only the great practical advances which are familiar to the layman but have also introduced fundamental conceptual alterations. Thus, the distinctions between matter and energy are fading. As a consequence of research in virology, the distinction between animate and inanimate becomes increasingly obscure. The animal body is regarded as a physico-chemical machine, and mind is merely a part of neural function. "The duration of life depends, as far as we can see, on the genetic equipment with which we are

endowed, the way in which we live our lives, and our environmental luck. . . . . There are no absolute criteria of physical or mental health. Disease must be regarded as some departure from average anatomical structure, or an abnormal degree of failure of physiological function, or some reduction of psychological efficiency, due either to adverse factors in the genetic endowment of the individual, or to the misuse of his freewill, or to adverse factors in the environment in which he lives, or to some combination of these causes. . . . Diseases are not specimens like birds and flowers which can be labelled and classified, but complex reactions between the genetic structure of the individual, the freewill with which we believe him to be endowed, and the environment in which he is compelled or elects to live and work."

Having traced the evolution of medicine and medical thought from antiquity to the present time the author finally arrives at a consideration of medicine as it is related to modern life. He is convinced that modern medicine, despite its spectacular advances, is failing to exert a sufficient influence on thought. This failure is largely attributable to specialization, which has constricted the training and interests of the physician and has tended to debar from his mind those extensive aspects of human life which are not amenable to treatment by the scientific method. In consequence of his narrow training and narrow outlook the modern physician is not equipped to take his proper stand in the middle ground between humanism and science.

The reader who follows Dr. Clark-Kennedy's concise and well-ordered review will insist on going a step farther. If modern medicine has failed to exert an adequate influence and if the fault lies within the realm of education, what is the remedy? For the United States — and presumably for Britain also — the treatment should consist of radical revision of the *pre*-medical course. For reasons which have never been elucidated sufficiently by historians of medicine, premedical education in America was abducted and sequestered by teachers of chemistry and zoology. This crime occurred at about the beginning of the present century and it has eluded retributive justice up to the present time. The premedical student, compelled to spend a large share of his formative years in the study of the natural sciences, comes to consider the humanities and the social sciences as unimportant "minor subjects" or perhaps as luxuries which may bring prestige but are not relevant to the serious business of diagnosing and dosing.

It is scarcely to be expected that the necessary educational reform will be undertaken by the educationally disfavored men who make up the ordinary medical associations. Nor is there at present any reason to expect a new dispensation from the faculties of our medical schools. Reform — if it ever comes — will have to be initiated through the influence of the private research foundations, or perhaps by small independent groups of illuminati, or perhaps under the leadership of some wise and energetic messiah. Such a man might well discover his first inspiration in Dr. Clark-Kennedy's percipient essay.

SAUL JARCHO

Poet Physicians, An Anthology of Medical Poetry Written by Physicians, compiled by Mary Lou McDonough. Springfield, Illinois: Charles C Thomas, 1945. 212 pp. $5.00.

OF the making of anthologies there is no end, so that when a new one appears one can only ask, Is its existence justified? and, Has the anthologist accomplished the self-set task?

In the case of Mrs. McDonough's compilation, the answer to the first question is a decided affirmative. An anthology of poetry written by physicians is highly desirable because it provides us in the handiest way with the work of a literary group which often is not easily accessible. This volume contains poems, either complete or excerpted, from the works of well over one hundred poets, and ranges in time from antiquity to the 20th century. One is indebted to Mrs. McDonough for showing how great is the contribution of medical writers to poetry.

Mrs. McDonough states that her intention has been "to select and to restrict the scope of the book solely to medical poetry written by physicians," and that she has "tried to gather together as many representative poems from as many languages and from as many eras in the history of medicine as space and exigency make possible." Has she achieved this aim? To this our answer must be that she has been only partially successful.

In the first place, a number of poems have been admitted that cannot by any stretch of the imagination be classed as medical poetry, e.g., "The Chambered Nautilus," by O. W. Holmes, and "Woman," by Oliver Goldsmith. In the second place, Mrs. McDonough has not succeeded in her aim of gathering "as many representative poems from as many languages" as possible. German literature (with which the reviewer is best acquainted among foreign literatures) is represented only by Friedrich Schiller. The contribution of German medical men to medical poetry would have been much more representative had selections been included from the works of Georg Büchner (1813–1837), Hans Much (1880–1933), Hans Carossa (1878—), and Gottfried Benn (1886—). Perhaps the work of Much presents a special case, as a large part of it is written in *Plattdeutsch*, and consequently is almost untranslatable. The collected verse of Carossa,[1] however, contains several doctor's poems — philosophical, it is true, rather than anatomical — that could have been translated. Or use might have been made of Carossa's long poem *Die Flucht*,[2] particularly the first section *Ein Arzt in seinem Verordnungszimmer*, which is modeled on the opening scene of *Faust*. Most appropriate of all, however, is Gottfried Benn,[3] a practicing surgeon in Berlin, whose technique has been described as *eine Medizinierung der Lyrik*. The two volumes of Benn's *Sektionslyrik* (dissectional lyric poetry), as it has been called, certainly contain material that should have gone into this volume. (In this connection, it is worth noting that *Sektionslyrik* is quite a European genre; a fine example is the Czech poem by Jiří Wolker on X-ray pictures.)

Still another limitation of Mrs. McDonough's anthology is the sketchy treat-

[1] Hans Carossa, *Gesammelte Gedichte*, 1923.

[2] Hans Carossa, *Die Schicksale Dr. Bürgers* [Insel-Bücherei Nr. 334] (Leipzig, Insel Verlag, 1930).

[3] Gottfried Benn, *Morgue*, 1912; *Fleisch*, 1916; *Gesammelte Gedichte*, 1933.

ment of medical light verse. It is a pity that room could not have been found in this volume for *The Stethoscope Song* by Oliver Wendell Holmes,[4] or the *Meditations of a Gastroenterostomisé*[5] by Richard Dewey (1845–1933).

The selections in *Poet Physicians* are introduced by appropriate explanatory paragraphs which add to the usefulness of the book. On page 24, however, mention is made of *Dr.* Louis Pasteur. *Dr.* Ferdinand Cohn, and *Dr.* John Tyndall. As this may create a false impression in the mind of the reader it should be pointed out that these scientists were not physicians. Pasteur was a chemist, Cohn a botanist, and Tyndall a physicist.

The above remarks have been offered in a purely constructive spirit, and in the hope that other workers in this field may derive some help from them. As one who is himself engaged in the preparation of an anthology, the writer is aware of the difficulties that may be encountered in the compilation of such a volume. It is therefore with a sense of sympathy and appreciation that I congratulate Mrs. McDonough for having accomplished so well what she set out to do.

GEORGE ROSEN

WAITE, FREDERICK CLAYTON. *The Story of A Country Medical College.* Montpelier, Vermont: Vermont Historical Society, 1945, 213 pp.

WITH all the precision of a laboratory investigator Doctor Waite has drawn from obscurity practically all of the important facts and much of the wearisome minutiae concerning the history of the Clinical School of Medicine and the Vermont Medical College. These two institutions were essentially one and the same medical school, the second having evolved from the first.

This medical college, founded in 1827 as the Clinical School of Medicine, in Woodstock, Vermont, was in many ways typical of the country medical schools that flourished sporadically in New England and elsewhere during the thirties and forties of the past century.

The founder, Joseph Adams Gallup, a Dartmouth medical graduate of 1798, was prominent in Vermont medical affairs. He was president of the Vermont State Medical Society 1818–1829 and taught in both Castleton Medical Academy and the University of Vermont Medical School (two country colleges) before his own venture in founding a school of medicine.

Doctor Gallup was an ardent believer in bedside instruction for medical students. The infirmary which he established in Woodstock in 1827 was probably insignificant in comparison with some of the city hospitals and clinics of the day, but it marked its founder as more than an ordinary country doctor. The institution distinguished itself in 1842 by being one of the first American medical colleges to offer physical diagnosis instruction in terms of auscultation and percussion.

The author, with meticulous care, has traced the complete history of the institution through its four eras: founding and preliminary phase, 1827–1829; affiliation with Waterville College in Maine, 1830–1832; affiliation with Middle-

[4] Oliver Wendell Holmes, *Poems* (Boston, 1858), pp. 272–77.

[5] *Recollections of Richard Dewey*, edited by Ethel L. Dewey (Chicago: University of Chicago press, 1936), pp. xi–xii.

bury College in Vermont, 1833–1838; and the independent era, 1838–1856.

Although this college in general followed the conventionally low medical educational standards of the times, it did attract a considerable number of superior teachers, some of whom introduced advanced teaching methods. The period of the school's greatest service was during the independent era. Half of the 17 professors who occupied chairs from 1836 to 1854 are regarded by Doctor Waite as eminent medical teachers of the 19th century: Elisha Bartlett, Henry H. Childs, Alonzo Clark, Chester Dewey, Frank H. Hamilton, Gilman Kimball, Edward M. Moor, Willard Parker, and Robert Watts.

Of the 1407 students listed on the rolls of the College throughout its history, only 505 received the M.D. degree in course. In addition, there were 31 honorary or *ad eundem* Doctor of Medicine degrees conferred.

The college fell a victim of the growing mid-century belief that adequate fresh anatomical specimens should be available for dissection and that extensive clinical facilities should be a part of a medical school. Woodstock, like other country communities, could not furnish these necessities. Hence the Vermont Medical College came to a struggling end in 1856.

The nine appendices and catalogues of graduates and non-graduates, pp. 141–205, offer an imposing amount of biographical and genealogical information. All students of American medical history, as well as investigators of the social scene in 19th century New England, will appreciate this carefully prepared volume.

WM. FREDERICK NORWOOD

SELSKAR M. GUNN AND PHILIP S. PLATT. *Voluntary Health Agencies. An Interpretive Study.* New York: Ronald Press Company, 1945. XVIII+364 pp. $3.00.

THIS book is not an historical study, but it is of definite interest to the student of medical history. It is a report of the present status of American voluntary health agencies. There are in this country today some 20,000 agencies enlisting the services of 300,000 board members and a million or more volunteers (exclusive of the Red Cross), and raising from the public well over $58 million annually. Until recently there was little known about the existing agencies. Four years ago the National Health Council sponsored, and the Rockefeller Foundation financed, a study of the extent and effectiveness of voluntary health work in this country. The study involved field work and visits to more than 700 health agencies in 65 cities and 29 states.

The final report of this study is the volume by Gunn and Platt with which we are here concerned. It discusses the nature of the voluntary health agency, indicates its social values and functions, and points out the defects of existing agencies. Considerable attention is devoted to statewide and nationwide organizations. The authors deplore the lack of central direction and planning, pointing out that not infrequently individual health organizations have overlapped and duplicated one another's efforts. Furthermore, the various national organizations are dedicated to isolated combat with specific diseases or the diseases of specific organs, so that it has generally been a case of each specialized interest fending for itself.

This state of affairs is reflected by the present separate, competitive money-raising appeals of the various health agencies. The authors recommend the pooling of these appeals into a national health campaign so as to have a more equable distribution of funds. They also propose further coordination and consolidation of the agencies at the national level with a wide coordination on the state and community levels. To accomplish this aim the report urges the establishment of a health council in every community, which will include representatives of all local health agencies. These proposals are put forth in the hope that they will ultimately lead to a unified health program.

Anyone interested in public health, medical care, and social welfare cannot help but be interested in this study, and it is to be hoped that the intelligent, forthright recommendations made by the authors will be adopted to the benefit of the health agencies and the entire public health movement. To the student of medical history, however, this study presents a problem of great interest. In this survey there is set before us the result of a historical process which has been operating for the past 50 or 60 years. Regarded from this viewpoint, it should occasion little surprise to find the voluntary health agencies reflecting the medical and social tendencies of the period in which they arose and came to maturity.

The voluntary health agency is a distinctly modern organization, which started out to furnish health services of a kind that had not previously been available. It was a pioneer in putting to use for the common welfare new facts or new conceptions about health and disease. While the voluntary health movement has had its fullest flowering in the United States, such voluntary organizations have not been confined to this country nor were they first developed here.[1]

Historically, the voluntary health movement appears to have had two main sources of inspiration. On the one hand, the voluntary agencies arose and based their efforts on concepts of health and disease that had been developed and had gained acceptance at the end of the last century and the early years of the present century. Important in this respect was the concept of the etiological specificity of disease (bacteriology). Almost equally important was the trend to specialization in medicine, which was accelerated by the new discoveries. On the other hand, the health agencies developed out of the efforts of organizations to grapple with poverty and privation, which revealed the destructive role of ill health and disease in the lives of the poor, and the need for vigorous action against physical illness. Many of these organizations, such as the Henry Street Settlement and the Association for Improving the Condition of the Poor, both in New York, developed nursing or clinic services. The Charity Organization Society of New York established its Committee on Tuberculosis, which later became the New York Tuberculosis and Health Association.

The social and economic environment within which this development occurred is that of American industrialization, with its accompanying urbanization and immigration. It was the rapid economic expansion of the country which helped to create the problems that gave rise to the voluntary health agencies, and which

[1] Alfred Grotjahn, *Soziale Pathologie. Versuch einer Lehre von den sozialen Beziehungen der menschlichen Krankheiten als Grundlage der sozialen Medizin und der sozialen Hygiene*, 2 ed. (Berlin: August Hirschwald Verlag, 1915), pp. 522–29.

made available material resources and leisure that could be utilized to start new organizations of public significance.

Clearly, the study by Gunn and Platt is a document of historical significance, first, because it summarizes and analyzes the present position of the voluntary health agency, an achievement which will no doubt exert a formative influence on its further development, and secondly, because it offers to the medical historian a significant problem — how did the voluntary health movement come into being, and what has been the process of development by which it arrived at its present state — the solution of which will be a distinct and important contribution to American history, to the history of public health, and to the history of medicine in general.

GEORGE ROSEN

Pharmacopoeia Londinensis of 1618. Reproduced in Facsimile with a Historical Introduction by George Urdang. Hollister Pharmaceutical Library Number Two. Madison: State Historical Society of Wisconsin, 1944. vii+299 pp. $12.00.

IN 1914 the late Albert H. and Kittie E. V. Hollister established the Hollister Pharmaceutical Library Fund of the State Historical Society of Wisconsin to promote the study of pharmaceutical development. In 1927 the Society reproduced in fine folio edition the influential Augsburg *Pharmacopoeia* of 1564. In editing this volume, the late Professor Edward Kremers translated for use as introductory essays two articles by Professor Theodor Husemann of Göttingen, "Die aeltesten Auflagen der Augsburger Pharmakopoe," and "Raymund Minderer und die Augsburger Pharmacopoen von 1613–1629" (*Pharmaceutische Zeitung*, 1892, 1899). Professor Husemann demonstrated the importance of the Augsburg *Pharmacopoeia* in establishing standards for drug dispensing and emphasized its conservative nature. It was compiled by Adolph Occo III (1524–1606), an Augsburg physician who opposed the innovations of Paracelsus (1493–1541), and was revised in 1573. Subsequent editions (Augsburg, 1613, 1622, 1623, and 1629) were edited and enlarged by Minderer (d. 1621). The 1564 edition is usually referred to as the *Pharmacopoeia Augustana*, from the title of the narrow folio. The 1573 edition first uses the word "Pharmacopoeia" in the title.

The State Historical Society of Wisconsin and Dr. George Urdang, Director of the American Institute of the History of Pharmacy at the University of Wisconsin, are now warmly congratulated on the appearance of the second issue of the Hollister Pharmaceutical Library. The excellent reproduction is taken from the British Museum copy of the first issue of the *Pharmacopoeia Londinensis*, May 7, 1618, which does not contain the King's Proclamation commanding its use. The copy of this same issue at the Philadelphia College of Pharmacy and Science does include this interesting Proclamation. The Hollister reproduction is prefaced by a clear and scholarly historical account of the *Pharmacopoeia Londinensis* by Professor Urdang.

The historical survey includes a review of the factors responsible for the

Pharmacopoeia Londinensis. The volume was part of the general effort to establish standards of professional practice for the protection of the sick from ill-trained persons or quacks. While Professor Urdang makes much of influence of the new "chymical" processes popularized by Paracelsus, it is also to be remembered that increase of new drugs from newly explored lands required standardization of some sort so that physicians might expect some degree of uniformity of response from their use. A proposal for such a book of drug standards for London was made by the Royal College of Physicians in 1585. In 1589 it was resolved that there be constituted one definite, uniform, and public dispensatory or formulary of medical prescriptions obligatory for apothecary shops, and a number of classes of standard preparations were assigned to members of the College for inclusion in the proposed book.

According to Professor Urdang, the first official European formulary was the Florentine *Nuovo Receptario Composito* of 1498, followed by the *Concordia Pharmacolarum Barcinonensium* in Spain in 1535. These were recognized by local physicians and druggists. The *Dispensatorium* of Valerius Cordus (1515–1544), issued in 1546 in Nürnberg, seems to have been the first to receive authority from a legally constituted lay body. These early efforts, like the Augsburg *Pharmacopoeia*, contain hundreds of practical empirical recipes, many of which may be traced back to such early Egyptian sources as the Ebers and Hearst Medical Papyri (1500 B.C.). Transmission to western Europe occurred through Greek channels, including Dioscorides and Galen, and then through Arab compilers as Avicenna and the mysterious Mesue, to the Salernitan *Antidotarium*. The *Pharmacopoeia Londinensis* was derived from these sources, and in turn was the basis for the *United States Pharmacopoeia* (1820).

Professor Urdang is to be thanked particularly for clarifying the difficulty regarding the two 1618 issues of the *Pharmacopoeia Londinensis*, the first on May 7, the second and official one on December 7. It seems that there was opposition to the first issue (184 pp.). The second issue (210 pp.) corrected errors and added some material, including an apology for the first issue. Few copies of the first issue have survived. Professor Urdang offers an exhaustive comparison of the two issues.

Professor Urdang concludes, "The first issue of the London Pharmacopoeia of 1618 represents the type of unpretentious formulary designed exclusively to serve immediate practical purposes and to guarantee uniformity in the preparation of remedies generally recognized and in common use." In this respect it reflects the spirit of the earlier pharmacopoeias. "The second issue represents the more pretentious pharmacopoeial combination of formulary and textbook, with the purpose of giving general information, also a survey of the entire materia medica.' The United States Pharmacopeias follow the example of the first issue, while the United States Dispensatories follow the style of the second.

The history of pharmacy is greatly enriched by the support of the Hollister Pharmaceutical Library, and by Professor Urdang's brilliant scholarship. Further contributions in the series will be eagerly welcomed.

CHAUNCEY D. LEAKE

HARRY S. MUSTARD. *Government in Public Health.* New York: The Commonwealth Fund, 1945. xvi+219 pp., $1.50.

THE contemporary student of medical history will find more than one item to interest him in this second study of the New York Academy of Medicine's Committee on Medicine and the Changing Order. The Committee set itself an interesting task, to wit:

> To explore the possibilities and to formulate methods of maintaining and improving standards of quality in medical service, including medical research, medical education, the maintenance of health, both physical and mental, the prevention of disease, and the treatment of disease.
>
> To study the means of making available to larger groups of people and to the country as a whole the best known practice in preventive and curative medicine.
>
> To explore the possibilities and to formulate proposals of distributing these services not only to a larger number but also at a lower per capita cost than the present system permits.

On the Committee sat physicians, dentists, nurses, laymen. It called on experts to prepare a series of monographs which would help them understand the current medical situation in America. So it is to be expected that the historian of the future may turn often to the 12 volumes which the Committee proposes to publish.

Dr. Mustard tells the story of the development of public health service in the United States. He approaches the subject largely from the governmental and administrative points of view and tries to point out as well certain social forces that have had influence. Now and then he predicts what probable trends one may expect. But he is at his best in outlining the factual story of how public health services developed and how they operate today.

Certainly to the historian and probably to many public health technicians and clinicians the freshest and most interesting part of the story is the material on the early years Dr. Mustard has dug out. For example he found a report transmitted by Alexander Hamilton to Congress on April 17, 1792, in which recommendations for federal Marine hospitals were made—a forerunner of the act of 1798 which finally established the United States Public Health Service. This important document has previously not been available in any publication, according to Dr. Mustard.

The careful analysis and recording of the discussions on the floor of Congress when the 1798 bill was under consideration are also of major historical interest. Similarly, the author has outlined the origins of state and local health departments. He has omitted mention of apparently the first American medical and public health document, *A Brief Rule to Guide the People of New England*, put out in Boston in 1677 by Thomas Thacher, from the press of John Foster.[1]

Dr. Mustard's story is easy to read and pleasantly documented. It should be required reading for the many who speak so glibly of "the American way" in medicine.

LEONA BAUMGARTNER

[1] Thomas Thacher, *A Brief Rule to guide the Common-people of New England.* Introduction by Henry R. Viets (Baltimore: The Johns Hopkins Press, 1937).

J. CHRISTIAN BAY. *The John Crerar Library, 1895–1944:* An Historical Report Prepared under the Authority of the Board of Directors by the Librarian. Chicago, 1945. x, 206, [8] pp. illus. Issued in both cloth and paper bindings.

OSLER, who loved libraries, loved to quote, and is himself endlessly quotable, says, in effect, somewhere, that libraries are usually created by the enthusiasm of a single man. Some of us could wish that this were not so, that libraries arose out of a communal enthusiasm for them; but Osler was right. A shining example of what he had in mind is the famous John Crerar Library of Chicago, which has recently published an historical jubilee report.

The Crerar collections are divided into six large groups of subjects: general works, and the social, physical, natural, medical, and applied sciences. In 1940 the medical collections ranked fourth among these in point of use, and tied with the social sciences collections for second place in number of accessions. This only imperfectly indicates the reason for a notice of the library's historical report in the *Journal:* namely, the fact that the medical department of the Crerar is pre-eminent among medical libraries of the midwest, and is the distinguished collection that has been of prime assistance to medical historians.

The historical report prepared by the Crerar's noted librarian, Mr. J. Christian Bay, is a rather unsatisfactory hodgepodge that is, nevertheless, of intense interest to those able to find in a great library's biography all the elements that prove fascinating in the biography of an individual. Unfortunately, it tells us almost nothing about the library's medical collections.

From a larger historical point of view, the Crerar history is very instructive. John Crerar was a Chicago business man, a bachelor, a book-lover—a type of benefactor well-known to most large industrial and cultural centers. The Crerar library was founded on an endowment of about $2,576,000, yielding at that time an annual income of nearly $99,000. What were Mr. Crerar's thoughts about this free public library which was to be created after his death and given his name? We quote from his will: "I desire the books and periodicals selected with a view to create and sustain a healthy moral and Christian sentiment in the community, and that all nastiness and immorality be excluded. I do not mean by this that there shall not be anything but hymn books and sermons, but I mean that dirty French novels and all skeptical trash and works of questionable moral tone shall never be found in this library. I want its atmosphere that of Christian refinement and its aim and object the building up of character. . . ."

The present eminence and intellectual scope of this great library, referred to its founder's words, teaches us what mighty blows for truth and freedom may be delivered by merely accentuating the positive and eliminating the negative.

W. B. MCDANIEL, II.

NOTES ON CONTRIBUTORS

FANNY J. ANDERSON, graduate student of history at Wayne University, was for some years Reference Assistant in the Medical Science Department of the Detroit Library. Her present study, the history of medicine in Detroit and Michigan before 1837, is an outgrowth of a long-standing interest in the history of Detroit. She is the author of "Medical Practices in Detroit during the War of 1812," an article which appeared in the *Bulletin of the History of Medicine*.

HUGH G. DICK, Ph.D., assistant professor of English at the University of California, Los Angeles, has for a number of years studied the relations between literature and science in the 16th and 17th centuries, and expects during the present year to complete a work on the history of astrological thought, addressed to a general audience.

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E. P. GOLDSCHMIDT, Ph.D., received his university education at Cambridge where he became an authority on early bindings. When his family fortunes were lost as a result of the first world war, Goldschmidt became a Dutch citizen and entered the book trade. He still prides himself on having a Dutch passport.

GEOFFREY JEFFERSON, M.D., who holds the chair of neurosurgery at the University of Manchester, himself a book collector and gifted writer, has a broad and sympathetic understanding of Dr. Cushing, and although he spent little time in Cushing's clinic, he prides himself on being one of Cushing's followers. As one of his most ardent admirers, he proposes soon to publish a biographical account of Cushing's contributions to clinical medicine and surgery.

CHARLES F. MULLETT, Ph.D., is professor of history at the University of Missouri. He has written extensively in the field of English medical history, chiefly on the plague and preventive medicine. In addition he has published

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ERNST WEIL, Ph.D., was an accomplished botanist prior to his entry in the book trade. For many years he was affiliated with the well-known firm of Messrs. Taeuber & Weil at Munich which had long been distinguished for its scholarly catalogues in the field of the history of medicine and science. Dr. Weil did not share the political sympathies of his associate Taeuber, and they amicably parted company in 1933. Weil settled in London and was for ten years associated with his friend, Dr. E. P. Goldschmidt. Three years ago he established an independent business at 28 Litchfield Way, London N.W. 11 and from there has issued to date seven catalogues on medicine and science

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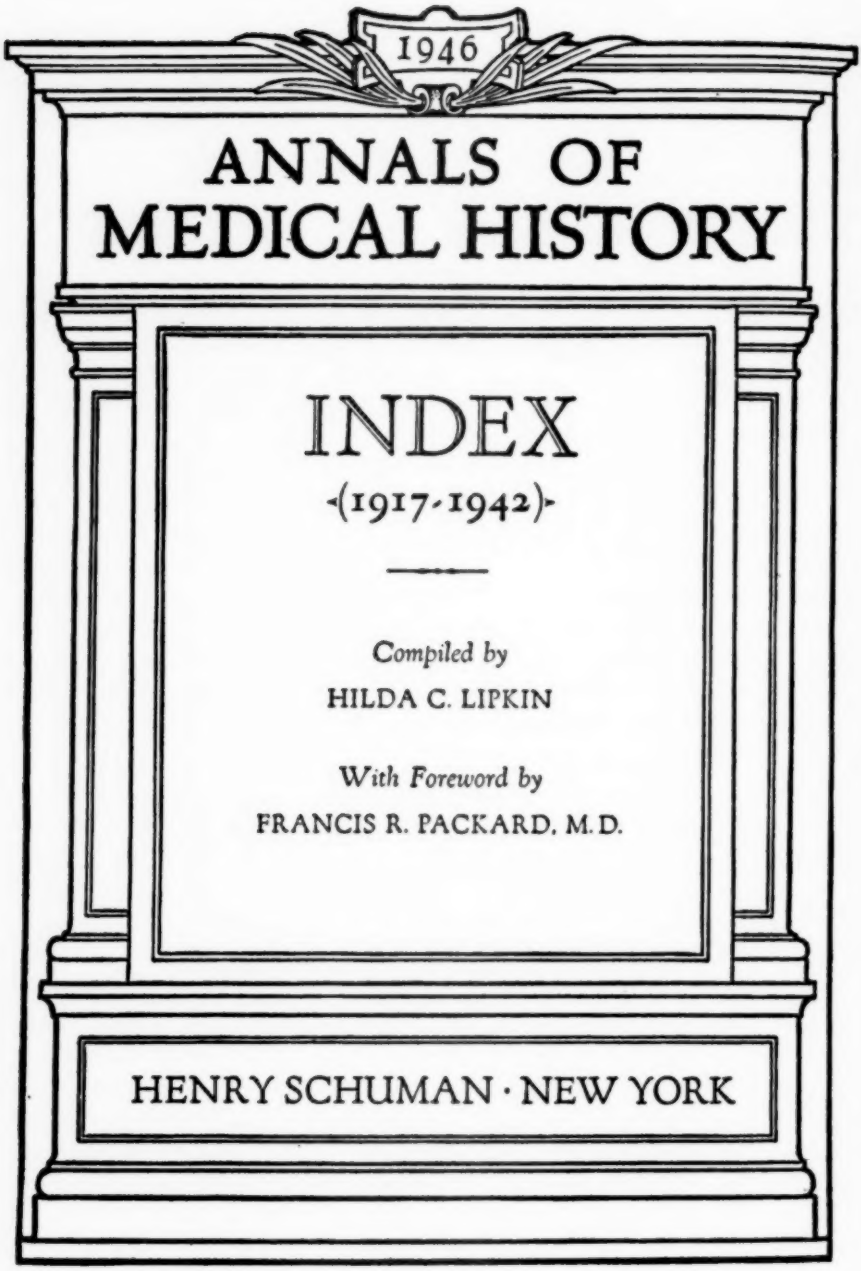

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